

LUCAS COUNTY CONSTRUCTION STANDARDS				
PAGE	ODOT ITEM	DESCRIPTION		
11	•	PIPE CRADLE		
13	604	TYPE 2 MANHOLE		
17	604	TYPE A-2 CB		
20	604	TYPE C CB		
22	604	UPRIGHT		
13	604	TYPE 4 MANHOLE		
•	•			

UNDERGROUND UTILITIES

CALL 800-362-2764 (TOLL FREE) OHIO UTILITIES PROTECTION SERVICE

TWO WORKING DAYS BEFORE YOU DIG

NON MEMBERS
MUST BE CALLED DIRECTLY



Civil Engineering, Surveying and Environmental Consulting

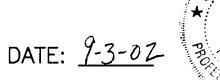
1800 Indian Wood Circle

Telephone: (419) 891-2222

Maumee, OH 43537

www.manniksmithgroup.com

BY: Brank . Sur REGISTERED PROFESSIONAL ENGINEER



SITE PLAN

FOR

PROPOSED RETAIL DEVELOPMENT CENTRAL AVENUE CENTER, LOT 2

CENTRAL AVENUE SYLVANIA, OHIO 43560 SYLVANIA TOWNSHIP LUCAS COUNTY, OHIO

INDEX OF SHEETS

TITLE SHEET	
GENERAL NOTES	C1
ALUCAS COUNTY SANITARY GENERAL NOTES	C2
ALUCAS COUNTY WATERLINE GENERAL INOTES	C3
CITY OF TOLEDO WATERLINE NOTES	CZ
EXISTING CONDITIONS/DEMOLITION PLAN	
SITE PLAN	C6
UTILITY AND DRAINAGE PLAN	C7
GEOMETRIC LAYOUT PLAN	CE-C8A
GRADING AND EROSION CONTROL PLAN	
DETAILS	
WATER MAIN DETAILS	
SANITARY SEWER DETAILS	
LANDSCAPE ISLAND DETAILS	•
SANITARY SEWER PROFILE	
WATER MAIN PROFILE	C15

CIVIL PERMIT CONTACTS A					
GOVERNING AGENCY	CONTACT NAME	ADDRESS	TELEPHONE NUMBER		
Lucas County Sanitary Engineer	James Shaw	1111 S. McCord Road	419-213-2926		
Lucas County Engineer	Keith Earley	One Government Center Suite 870 Toledo, Ohio 43604	419-213-4540		
Sylvania Twp.~Zoning	Brad Peebles	4927 Holland—Sylvania Rd Sylvania, Ohio 43560	419-882-0031		
Sylvania Twp.~Police	Gary Copeland	4220 King Rd. Sylvania, Ohio 43560	419-882-2055		
City Of Sylvania~Fire	Chris Maurer	6630 Monroe St Sylvania, Ohio 43560	419-882-7676		

PRE-PLANINING OHIO UTILITY PROTECTION SERVICE

DISTRICT 2

317 E. POE RD.

CITY OF TOLEDO

VERIZON NORTH

REFERENCE NO.:#40381115 (PERCENTUM) #613028048 (CENTRAL)

ATT 7630 FINZEL RD. WHITEHOUSE, OHIO 43571

PHONE: 877-0413

COLUMBIA GAS OF OHIO
333 SOUTH ERIE ST.

333 SOUTH ERIE ST. TOLEDO, OHIO 43602 PHONE: 252-8098

TOLEDO EDISON CO.
300 MADISON AVENUE
TOLEDO, OHIO 43652
PHONE: 249-5272

BUCKEYE CABLEVISION
4818 ANGOLA ROAD
TOLEDO, OHIO 43615

PHONE: 213-2926

PHONE: 724-9810

LUCAS COUNTY SANITARY ENGINEER

\$1111 S. McCORD RD.

\$HOLLAND, OHIO 43528

LUCAS COUNTY ENGINEER
ONE GOVERNMENT CENTER
TOLEDO, OHIO 43604
PHONE: 245-4540

OHIO DEPT. OF TRANSPORTATION

BOWLING GREEN, OHIO 43402

DIVISION OF WATER DISTRIBUTION

PHONE: 419-353-8131

401 SOUTH ERIE STREET

PHONE: (419) 242-5040

300 W. GYPSY LANE ROAD

PHONE: 1-419-352-6521

BOWLING GREEN, OHIO 43402

TOLEDO, OHIO 43602

WILLIAMS COMMUNICATIONS 639 OLIVER ST. TOLEDO, OHIO 43609 PHONE: 244-1931

2002 SPECIFICATIONS

ALL MATERIALS AND CONSTRUCTION WILL BE IN ACCORDANCE WITH THE CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE LUCAS COUNTY ENGINEER FOR DRAINAGE, LUCAS COUNTY SANITARY ENGINEER FOR SANITARY & WATER, CITY OF TOLEDO FOR WATER, AND GIANT EAGLE. OHIO DOT 2002 SPECIFICATIONS ALSO APPLY AS SHOWN. IN A CASE WHERE THERE IS A CONFLICT, THE MOST STRINGENT MEASURE SHALL APPLY.

SOIL EROSION AND SEDIMENTATION BMP MEASURES WILL BE INSTALLED PRIOR TO START OF ANY CONSTRUCTION AND WILL BE MAINTAINED AT ALL TIMES UNTIL CONSTRUCTION HAS BEEN COMPLETED, INCLUDING ALL GRASS BEING WELL ESTABLISHED AND/OR PERMANENT EROSION AND SEDIMENTATION BMP MEASURES IN PLACE. ALL BMP MEASURES WILL BE TO THE SATISFACTION OF THE OHIO EPA, SYLVANIA TWP AND LUCAS COUNTY. EITHER AGENCY MAY REQUIRE WORK TO BE STOPPED AND THE STORM DRAINAGE OUTLET TO BE PLUGGED IF CONDITIONS BECOME UNSATISFACTORY.

LEGEND EXISTING PROPOSED SOIL BORING TELEPHONE RISER **GUY WIRE** POWER/TELE POLE POST GUY POLE **MANHOLE** CATCH BASIN GAS VALVE TELEPHONE MANHOLE ROAD CENTERLINE PROPERTY LINE CABLE RIGHT-OF-WAY LINE EDGE OF PAVEMENT — T — UNDERGROUND TELE.

		APPROVALSA	
	APPROVED:	THE BENCHMARK GROUP VICE PRESIDENT—CONSTRUCTION	DATE:
UCAS CO. ENGINEER	APPROVED: GIANT EAGLE DIRECTOR OF DEVELOPMENT		DATE:
	APPROVED:	LUCAS COUNTY PLANNING COMMISSION	DATE:
	APPROVED:	LUCAS COUNTY ENGINEER'S OFFICE	DATE:
	APPROVED:	SYLVANIA TOWNSHIP ZONING	DATE:
APPROV	APPROVED:	SYLVANIA TOWNSHIP FIRE DEPARTMENT	DATE:
LUCAS COUNTY ENDATE 9-9-02 BY M.		LUCAS COUNTY SANITARY ENGINEER	DATE:

S:\Projects\Civil\b157b6o\ROADWAY\B157B6.G.T: CAD Dwg. Scale: (Eng.) 1=1 Last CAD Revision: 09/03/02 Last Revision By: Gackstetter Description: REVISED PER COUNTY

 \bigcirc

 \circ

 \bigcirc

GIANT EAGLE B157B6A

annik

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS. O.U.P.S. IDENTIFICATION NUMBERS ARE #040381115 (PERCENTUM RD.) AND #613028048 (CENTRAL AVE.).

ROADWAY:

WATERLINES:

TELEPHONE:

DISTRICT 2

317 E. POE RD.

CITY OF TOLEDO

VERIZON NORTH

OHIO DEPT. OF TRANSPORTATION

DIVISION OF WATER DISTRIBUTION

BOWLING GREEN, OHIO 43402

PHONE: 419-353-8131

401 SOUTH ERIE STREET

PHONE: 419-242-5040 8

300 W. GYPSY LANE ROAD

PHONE: 419-352-6521

BOWLING GREEN, OHIO 43402

TOLEDO, OHIO 43602

TELEPHONE:

ATT 7630 FINZEL RD. WHITEHOUSE, OHIO 43571 PHONE: 419-877-0413

NATURAL GAS:

COLUMBIA GAS OF OHIO 333 SOUTH ERIE ST. TOLEDO, OHIO 43602 PHONE: 419-252-8098

ELECTRIC:

TOLEDO EDISON CO. 300 MADISON AVENUE TOLEDO, OHIO 43652 PHONE: 419-249-5272

TELEVISION: BUCKEYE CABLEVISION

> 4818 ANGOLA ROAD TOLEDO, OHIO 43615 PHONE: 419-724-9810

WATERLINES:

LUCAS COUNTY SANITARY ENGINEER 1111 S. McCORD ROAD

TOLEDO, OHIO 43528 PHONE: 419-213-2926

SANITARY SEWERS:

LUCAS COUNTY SANITARY ENGINEER 1111 S. McCORD ROAD TOLEDO, OHIO 43528

PHONE: 419-213-2926

STORM SEWERS: LUCAS COUNTY ENGINEER

ONE GOVERNMENT CENTER TOLEDO, OHIO 43604 PHONE: 419-245-4540

FIBER OPTICS: WILLIAMS COMMUNICATIONS 639 OLIVER ST. TOLEDO, OHIO 43609 PHONE: 419-244-1931

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

SPECIFICATIONS

THE LUCAS COUNTY SPECIFICATIONS, OHIO EPA REQUIREMENTS THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, 2002, CITY OF TOLEDO, AND GIANT EAGLE, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS, IF ANY, SHALL GOVERN THIS IMPROVEMENT.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON SBM #1, WITH AN ELEVATION OF 651.27.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR ALL REMAINING SOIL AREAS DISTURBED BY CONSTRUCTION.

BACKFILL

> TRENCHES UNDER PAVED AREAS, SIDEWALK, ETC.., SHALL BE BACKFILLED WITH COMPACTED GRANULAR BACKFILL. BACKFILL MATERIAL UNDER PAVED STREETS OR WITHIN FIVE (5) FEET OF THE EDGE OF PAVEMENT SHALL BE ITEM 411, ODOT SPECIFICATION GRANULAR AND PLACED IN SIX (6) INCH LAYERS AND MECHANICALLY TAMPED, WEIGHT OF THE GRANULAR MATERIAL SHALL BE COMPUTED ON THE BASIS OF 4,000 POUNDS PER CUBIC YARD. ALL BACKFILL FOR UNDERGROUND UTILITIES SHALL BE INCLUDED IN THE UNIT COST FOR THE VALVES, FITTINGS AND PIPING. BACKFILL FOR MANHOLES AND OTHER STRUCTURES SHALL BE INCLUDED IN THE COST OF EACH STRUCTURE.

CONDITIONS OF WORK

THE DRAWINGS SHOW CHARACTERISTICS OF THE WORK SITE. THIS INFORMATION IS NOT REPRESENTED OR GUARANTEED TO BE EITHER COMPLETE OR ACCURATE. THE CONTRACTOR MUST EXAMINE THE SITE AND SATISFY HIMSELF OF THE SURFACE AND SUBSURFACE CONDITIONS AND DIFFICULTIES THAT MAY BE ENCOUNTERED IN THE EXECUTION OF THE WORK. THE CONTRACTOR SHALL VERIFY ALL LOCATION AND INVERT

PIPE EMBEDMENT

ALL PIPING SHALL BE BEDDED PER CITY(WATER) COUNTY (DRAINAGE) AND COUNTY SANITARY (SANITARY AND WATER) REQUIREMENTS. THE COST OF BEDDING MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE OF THE PIPE.

ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.

SUBSURFACE ROCK

TEST HOLES, IF ANY, FOR ROCK DETERMINATION WERE DUG AS INDICATED ON PLAN.

EMBANKMENT CONSTRUCTION

WHERE IT IS NECESSARY TO CONSTRUCT PAVEMENT SUBGRADE IN FILL. THE CONTRACTOR SHALL REMOVE THE EXISTING TOPSOIL BENEATH THE PROPOSED PAVEMENT.

MAINTENANCE

AT ALL TIMES DURING THE PROCESS OF THE WORK AND UNTIL THE RELEASE OF THE CONTRACTOR FROM HIS OR HER GUARANTEE BY THE COUNTY. THE CONTRACTOR SHALL MAINTAIN THE BACKFILLED TRENCHES. ANY SETTLEMENT THAT OCCURS DURING SUCH TIME SHALL BE IMMEDIATELY FILLED. THE CONTRACTOR SHALL ALSO REPLACE ALL PAVEMENTS, DRIVES, PIPE, ETC.... WHICH HAS BEEN DISTURBED TO A CONDITION EQUAL OR BETTER THAN THAT WHICH WHICH EXISTED CONSTRUCTION WAS STARTED.

INSPECTION

ALL WORK PERFORMED IN THE RIGHT-OF-WAY ON THIS PROJECT IS SUBJECT TO THE INSPECTION AND APPROVAL OF LUCAS COUNTY AND OTHER GOVERNING AGENCIES.

CONSTRUCTION LAYOUT

THE OWNER WILL PROVIDE ALL CONSTRUCTION STAKES ONE TIME NECESSARY FOR THE PROPER INSTALLATION OF THE WORK. ALL MAINTENANCE AND RESTAKING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND

UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS O'VER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY. THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OF UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED PIPE.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED. DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

ITEM 614 MAINTENANCE OF TRAFFIC

TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON ALL ADJACENT STREETS. IF CONSTRUCTION ADJACENT TO THE ROAD INTERFERES WITH TRAFFIC IN THE OPINION OF THE LUCAS COUNTY ENGINEER, THEN ONE LANE MAY BE CLOSED AND TRAFFIC CONTROLLED BY AT LEAST TWO FLAGGERS AND TRAFFIC CONTROL DEVICES AS PER STANDARD CONSTRUCTION DRAWING MT-97.10.

THE ROADS SHALL BE REOPENED TO TWO LANES AT ANY TIMES WHEN WORK IS SUSPENDED (NIGHTS, WEEKENDS, INCLEMENT WEATHER, ETC.)

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

EXISTING STORM DRAINAGE

BEFORE STARTING WORK, A REPRESENTATIVE OF THE LUCAS COUNTY ENGINEER AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING SEWERS AND DRAINS WITHIN THE WORK LIMITS.

THE CONTRACTOR SHALL CONDUCT ITS OPERATIONS SO AS TO MAINTAIN STORM SEWER FLOWS AT ALL TIMES AND SHALL PROMPTLY REPLACE IN KIND ANY STORM SEWERS DISTURBED BY CONSTRUCTION TO THE SATISFACTION OF LUCAS COUNTY ENGINEER THE COST OF MAKING INSPECTIONS AND ANY REPAIRING OR CORRECTING OF SEWERS AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE INCLUDED.

RESTORATION OF RIGHT OF WAY

ALL EXISTING FEATURES IN EXISTING RIGHT-OF-WAY THAT ARE DISTURBED DUE TO CONSTRUCTION SUCH AS: MAILBOXES, SHRUBS, BUSHES, CURBS, GUARDRAIL, DRIVEWAYS, SWALES, SEWERS, CATCH BASINS, BERMS, SEEDED AREAS, ETC., SHALL BE REPLACED TO THEIR ORIGINAL CONDITION IN ACCORDANCE WITH CURRENT O.D.O.T. SPECIFICATIONS AND IN ACCORDANCE WITH ITEM 603.09 TO THE SATISFACTION OF THE LUCAS COUNTY ENGINEER. PAYMENT FOR THIS WORK SHALL BE INCLUDED WITH THE UNIT PRICE BID FOR THE PERTINENT

APPROVED PLAN

THE APPROVED SITE GRADING AND DRAINAGE MAY NOT BE CHANGED WITHOUT THE AUTHORIZATION OF THE LUCAS COUNTY ENGINEER.

CONSTRUCTION PERMIT

A PERMIT SHALL BE OBTAINED FROM LUCAS COUNTY AT LEAST ONE WEEK PRIOR TO BEGINNING WORK IN THE PUBLIC RIGHT OF WAY. APPLICATION FOR THE PERMIT IS TO BE MADE AT THE LUCAS COUNTY ENGINEER'S OFFICE. LUCAS COUNTY SANITARY ENGINEERS OFFICE, AND THE CITY OF TOLEDO (WATER ONLY)

STORM SEWER

STORM SEWER PIPE

ALL STORM PIPE SHALL MEET THE REQUIREMENTS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION ITEM 603. STORM SEWER MATERIAL USED FOR TYPE B CONDUIT MAY CONSIST OF ANY OF THE FOLLOWING

MATERIALS: POLYVINYL CHLORIDE (PVC), MEETING ASTM 3034, SDR 35, FOR SIZES UP TO AND INCLUDING 18", MINIMUM STIFFNESS OF 46 PSI, AND REINFORCED CONCRETE PIPE, PER AITEM 706.02. All Concrete Pipe Shall Have Flexible

CONNECTIONS

ALL STORM SEWER LATERALS SHALL BE PROPERLY PLUGGED AND MARKED WITH TWO (2) INCH BY FOUR (4) INCH STAKE EXTENDING FROM THE FLOWLINE TO 4 ABOVE THE FINISH GRADE. STORM LATERALS SHALL BE POLYVINYL CHLORIDE (PVC), MEETING ASTM SPECIFICATIONS D-3034, SDR 35.

SITE GRADING

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO GRADE THE ENTIRE AREA OF EACH PLAT UNDER CONSTRUCTION TO PROVIDE POSITIVE DRAINAGE.

FITTINGS

ALL FITTINGS (REDUCERS, TEES, WYES, SADDLE TAPS ETC...) SHALL MANUFACTURED IN THE SAME MANNER AS THE CONDUIT. NO "FIELD-MADE" OR INJECTED MOLDED FITTINGS WILL BE ACCEPTED.

DEFLECTION AND INFILTRATION TEST

ALL PVC AND OTHER FLEXIBLE PIPE USED FOR STORM SEWERS SHALL BE TESTED FOR DEFLECTION BY THE CONTRACTOR. UNDER THE SUPERVISION OF THE OWNER. TESTS SHALL NOT BE CONDUCTED UNTIL AT LEAST 60 DAYS AFTER FINAL BACKFILL HAS BEEN PLACED. MAXIMUM ALLOWABLE DEFLECTION SHALL BE 5%. IF THE TEST IS ACCOMPLISHED BY PULLING A MANDREL THROUGH THE PIPE, NO MECHANICAL EQUIPMENT SHALL BE USED TO ASSIST. ADDITIONAL "SPOT CHECKS" OF CONDUIT DEFLECTION SHALL BE PERFORMED AT THE DIRECTION OF THE OWNER.

Sylven Sylven

OWNER **Benchmark**4053 Maple Road
Amherst, NY 14226
(716) 833-4986

GIANT

/15 C1

B157B6A

S:\Pr CAD | Last Last Descr

All material shall be manufactured in the United States of America. Copies of suppliers invoices shall be submitted to the Engineer.

SANITARY SEWER PIPE

All pipe for sanitary sewer shall have premium joint and shall be either Item 706.02 (reinforced pipe), Item 706.08ES (vitrified clay pipe), or polyviny! (PVC) sewer pipe and fittings conforming to A.S.T.M. D-3034-SDR35.

If type "B" or "C" conduit is specified, the contractor may use polyvinyl (PVC) sewer pipe and fittings, A.S.T.M. (American Society for Testing and Materials) D-3034-SDR35. The pipe and fittings shall be made of PVC plastic having a cell classification of 12454-B as defined in specification D-1784. Compounds that have different cell classifications because one or more properties are superior to those of the specified compounds are also acceptable.

18" diameter and larger P.V.C. pipe shall be in accordance with A.S.T.M. F-679.

PIPE JOINT

All pipe shall be premium joint.

PIPE SPECIALS

()

Quantities for pipe bends, tees, wyes, plugs and other fittings are listed on the plans for the convenience of the contractor. The cost of all pipe specials for all types of pipe shall be considered paid for in the unit price bid per linear foot for the pertinent conduit item.

SANITARY MANHOLES

For sewers with a diameter of 36 inches or less, Type 2 standard, Type 3 drop and Type 4 Manholes shall be constructed with approved precast concrete manhole sections conforming in general to A.S.T.M. C-478.

Precast reinforced concrete riser rings and domes shall comply with the requirements of Item 706.02 except for minimum designs and marking. Minimum wall thickness shall be 5 inches and circular reinforcement shall be a minimum of 0.18 sq. in. per foot. Concrete shall have a minimum strength of 4.000 lbs. per sa. inch.

1-1/4 inch holes for handling may be cast into domes and rings.

Connection box for precast manholes on sewers 42 inches and over in diameter shall be reinforced as specified and shown on the standard drawing. Concrete for the manhole base, connection box and invert shall be Class "C", meeting requirements of Item 499 - 0.D.O.T.

The following shall be clearly stenciled or impressed on each riser ring:

- B. The date of manufacture
- C. The name or trademark of the manufacturer and location of the plant.

Connections for lateral sewers including drops and leads, except pipe included in Item 603, will be considered a part of all manholes. Minimum drop pipe diameter for sanitary sewer manholes shall be 6 inches. A drop pipe shall be provided for a sewer entering a manhole at an elevation of 24 inches or more above the manhole invert.

Openings for the inlet and outlet sewer pipe shall be drilled or cast in the precast ring and shall be fitted with a gasketed flexible watertight connection. Kor-N-Seal boot or approved equal, to prevent infiltration.

Sanitary sewer manholes shall have flexible watertight joints, using rubber gaskets for sealing the joints conforming in general to A.S.T.M. C-443. The joints shall be of such design as will permit placement without appreciable irregularities in the interior wall surface of the manhole. Acceptable 48 inch diameter joints shall be of the "O" ring gasket type, or approved equal.

Access through manholes shall be by means of steps meeting the requirements of Item 604 - Ohio Department of Transportation Construction and Material Specifications.

Manhole sections may be repaired, if necessary, because of occasional imperfections in manufacture or accidental damage during handling and will be acceptable if, in the opinion of the Lucas County Sanitary Engineer, the repairs are sound and properly finished and cured and the repaired manhole sections confirm to the requirements of A.S.T.M. C-478.

Adjusting rings, shall be precast, reinforced with one No. 3 gage wire or equivalent. There shall be a minimum of 4 inches, maximum of 12 inches. The entire outer surface of adjusting rings and manhole castings shall receive a smooth plaster coat of 1/2 inch minimum Portland Cement mortar unless otherwise detailed on the drawings or directed by the Lucas County Sanitary Engineer.

When manhole is located within the payement area, the back fill material shall be arounder material and it shall be tamped in place and then inundated. Granular material shall meet the requirements of Item 310.02 of the 1997 Construction and Material Specifications, Ohio Department of Transportation as modified by the Lucas County Engineer.

MANHOLE CASTINGS

Standard cast iron manhole frame and cover shall be Neenah R-1771 or approved equal. The combined weight shall not be less than 485 lbs. with vented lid. In payement greas, or where required, or noted on detail plans, specify solid lid. In payement greas, after the casting is set to grade, a circular area with a width of 12 inches shall be neatly cut away down to the bearing of the flange of the casting. The excavated grea ground the casting shall then be filled and compacted to 1/4 inch below the new surface with class "C", meet requirements of Item 499, O.D.O.T. concrete as specified by the Engineer.

All castings must:

- be poured in a closed mould and shall be true to pattern.
- be free of blows, porosity, burrs and other defects and shall not under any circumstances be plugged.
- be of a good grade of machinable grey iron used in commercial castings.
- All bearing bases shall be machined when used by traffic.

If castings are delivered to the job unpainted, they shall be given one coat of asphalt varnish or coal—tar pitch paint by the contractor.

SANITARY SERVICE CONNECTIONS

All sanitary service connections shall be properly plugged and suitably staked at the end of the service connection plug. Stake shall be a minimum 4 feet above plug to aid in future location of service connection. The cost of labor and materials for installation to be included in the unit price bid for the conduit.

All sanitary sewer connections constructed for existing buildings with basements shall be a minimum of 3 feet below the basement floor elevation at the property line. If the property is a vacant lot, the connection shall be a minimum of 8 feet below the payement elevation at the property line. Any deviation from the above minimum standards will be shown on the plans and shall be approved by the Lucas County Sanitary Engineer.

Except as otherwise noted, all cross-over taps shall have a minimum grade of 1%.

Where the depth of the main sewer, at a service connection, is over 12 feet, a riser shall be required as shown on the plans. The riser shall be constructed in conformance with the sanitary riser detail included in these specifications.

Riser shall be the same size as the influent pipe or as indicated on detail plans.

All service connections shall be painted "green" at end of pipe. Color shall be in accordance with O.S.H.A. Specification 1010.144, approved safety color.

Quantities for risers, cross-overs, and service connections have been calculated for the standard sanitary riser detail. If the contractor, with the approval of the Lucas County Sanitary Engineer, elects to use an alternate riser, it shall be at no increase cost to the

SANITARY SEWER INSPECTION

All work performed within the scope of this project is subject to the inspection and approval of the Lucas County Sanitary Engineer.

The sanitary sewer shall be visually inspected from manhole to manhole to assure correct alianment and absence of leaks. Sewer pipe invert elevations will be checked from manhole to manhole. Sewers with grades less than design grades are subject to rejection. The following table is the maximum allowable deviation of the constructed center of the sanitary sewer from manhole to manhole from the straight line design between the two

CONDUIT INSIDEDIAMETER	MAXIMUM ALLOWABLE DEVIATION FROM DESIGN CENTER OF CONDUIT
8 inch	2 inch
10" – 12 inch	3 inch
15 inch	4 inch
18" – 24 inch	5 inch

The maximum spacing between manholes shall be 350 feet, unless specified on the detail

The construction of any part of the sanitary sewer including manholes and structures outside the permanent right-of-way and/or the permanent sanitary sewer easemeint will not be accepted by the Lucas County Sanitary Engineer.

INSTALLATION

The pipe shall be laid on a properly shaped and firm bedding of the type specified and meeting requirements of Item 603.04 of the current Construction and Material Specifications, State of Ohio, Department of Transportation. Where conditions warrant, unsuitable material shall be removed and granular material conforming to the specification shall be used for bedding.

All pipe and appurtenances shall be installed true to line, grade and location: with joints centered, spigots home and proper support and blocking provided. Care shall be used to lay the pipe so that it is supported and bedded the full length of the barrel.

When no bedding class is specified, the requirements for class "B'" bedding shall apply

Class "A" bedding shall consist of a continuous concrete cradle conforming to the plan details

Class "B" bedding shall consist of a bed of granular stone material (Item 411 current specifications) having a thickness of at least 6 inches below the bottom of the piipe and extending up around the pipe for a depth of not less than 30% of its vertical ourtside diameter. The layer of bedding material shall be shaped to fit the conduit for at least 10% of the vertical diameter of the conduit and shall have recesses shaped to receive the bell of bell-and-spigot pipe.

Class "C" bedding shall consist of bedding the conduit in its natural foundation to a depth of not less than 10% of its total height. The bed shall be shaped to fit the conduit and shall have a recessed shaped to receive the bell.

BACKFILLING

All trenches and excavations shall be backfilled immediately after pipe is laid thereein. No material shall be used for back filling that contains stones, rock or pieces of massonry, frozen earth, debris or earth with an exceptionally high void content.

Trenches outside the limits of 5 feet from the back of curb or edge of pavement shall be backfilled with thoroughly tamped granular material a minimum of 12 inches above the top of the pipe. The remainder of the trench may be filled with excavated material, insofar as it is of suitable character.

Trenches under payement and to the limits of 5 feet outside the back of the curb or edge of pavement shall be backfilled with thoroughly tamped granular material to the pavement subgrade. Granular backfill shall conform to the gradation requirements of Item 411 of the 1997 Construction and Material Specifications, State of Ohio, Department of Transportation.

Granular material may be compacted with water if satisfactory drainage is provided for the free water. When compacting with water, the granular material may be placed in layers not to exceed 8 inches loose depth and each layer thoroughly saturated with water by flooding or jetting. Prior to the placement of soil over the granular material the free water should be

TESTING REQUIREMENTS FOR SANITARY SEWERS

After the pipe has been laid and back filled, a low pressure air test or a water infiltration or exfiltration test shall be made on each section of pipe line between manholes. The sanitary sewer will be tested for infiltration or exfiltration as determined by and under the supervision of the Lucas County Sanitary Engineer. When an air test is required, in lieu of the water test, the Engineer shall give explicit instructions to be followed in carrying out the test. For the water test, maximum allowable infiltration or exfiltration shall not exceed 200 gallons per inch of pipe diameter per mile of pipe per twenty-four hours for any section of the system, including all manholes. Force main installations shall be pressure tested in accordance with AWWA C-600, current standards.

For flexible sanitary sewer pipe, five percent (5%) is the maximum allowable deflection. The deflection test can be run by use of a rigid ball or mandrel, whose diameter is equal to 95% of the inside diameter of the pipe, pulled through the sewer line. Deflection test will be performed three to six months after back filling or prior to completion of the project. Unless otherwise directed by the Engineer, all PVC pipe will be tested for deflection.

Should any section of the conduit fail to meet the above test requirements, it shall be the contractor's responsibility to provide television inspection and to provide necessary

corrections. The cost of all materials, labor and incidentals necessary for performing the tests and making the corrections and replacements shall be included in the price bid for the pertinent conduit item.

ROOF DRAINS

Roof drains, foundation drains and other clean water connections to the sanitary sewer are

SEWER-WATERLINE SEPARATION

Sanitary sewer and manhole installations shall be laid with at least ten (10) feet horizontal and eighteen (18) inches vertical separation from any waterline measured edge to edge.

SAFETY REQUIREMENTS

The contractor shall at all times follow all state and local safety requirements during construction of this project. Special care shall be taken during all trenching operations. Sheeting and bracing, cribbing, etc., must be installed as required, by the Engineer, to provide maximum safety to the contractor's workers in full compliance with Occupational Safety and Health Administration (OSHA) regulations.

INSURANCE

No Contractor or subcontractor shall start any work until the approved certificate of liability insurance is filed with the Lucas County naming Lucas County as the insured.

CONSTRUCTION STAKING

Construction staking for public sanitary sewers will be performed by the Lucas County Sanitary Engineer. Forty-eight hours prior notice will be required for construction stakes. Subdivision control points will be set by the consulting engineer. It is the contractor's responsibility to protect and preserve the construction stakes and to verify their correctness prior to laying pipe.

EXISTING SURVEY POINTS

Survey monuments, bench marks and existing control points damaged or disturbed by construction shall be replaced by a registered land surveyor at the contractor's expense. Should the contractor fail to properly replace these points, the Lucas County Engineer shall replace them at the contractor's expense after three weeks notice.

REVIEW OF DRAINAGE FACILITIES

Before any work is started on the project, and again before final acceptance by the County, representatives of the Township, County Sanitary Engineer, County Engineer, and the contractor shall make an inspection of the existing sewers within the project limits which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Records of the inspections shall be kept in writing by the County.

All new conduits, inlets, catch basins and manholes constructed as a part of the project shall be free of all foreign matter and in a clean condition before the project will be acceptable by the County.

All existing sewers inspected initially by the above-mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the contractor's operations shall be corrected by the contractor to the satisfaction of the County Engineer.

Payment for all operations described above shall be included in the unit prices bid for the pertinent conduit items of the contract.

EXISTING SEWERS

Except as otherwise provided in these plans, flow in existing storm and sanitary sewers shall be maintained at all times during construction of this project.

The existing sewers and catch basins are to be replaced immediately if damaged during construction by conduit of equal strength and a catch basin of equal construction. These replacements, if necessary, are to be considered paid for in the unit price bid for the installation of the proposed sanitary sewer. Ditches are to be regraded to drain properly.

CONNECTIONS TO EXISTING SEWERS

Where the plans provide for the proposed conduit to be connected to, or to cross either over or under an existing sewer, it shall be the responsibility of the contractor to locate the existing pipe both as to line and grade before he starts construction of the proposed sewer.

The contractor shall be responsible for any damage to existing sewers resulting from his operation or negligence.

OBSTRUCTIONS IN RIGHT-OF-WAY

The contractor shall not remove any mail boxes, paper boxes, private light posts, signs, utility markers, trees, shrubbery, fence, quardrail or other obstructions without the prior approval of the Engineer. The contractor shall notify all property owners and request that the property owner remove fences, shrubs, bushes, light posts, private signs and ornamental landscaping which includes, but is not limited to railroad ties, statues, brick or stone, wash stone, wood chips, etc. from the public right-of-way.

If the owner of said obstruction does not remove or relocate said obstruction within a reasonable time (10 days maximum) the contractor shall remove the obstruction and place it at the direction of the Engineer. If mailboxes cannot be immediately replaced, the contractor shall provide for temporary mail service suitable to the U.S. Postal Service. Payment for this work shall be included in the unit price bid for the pertinent conduit item.

RESTORATION OF RIGHT-OF-WAY

All existing public and quasi-public features in the existing public rights-of-way that are disturbed due to construction such as, but not limited to: mail boxes, curb, guardrails, driveways, swales, sewers, ditches, catch basins, berms, seeded areas, etc., shall be replaced to their original condition in accordance with current Ohio Department of Transportation specifications and in accordance with Item 603.09 to the satisfaction of the Lucas County Engineer.

Payment for this work shall be included in the price bid for lump sum, bid item -Restoration of Right-of-Way, however, no payment for this item shall be made and/or final acceptance of this project until such time as restoration of right-of-way is complete to the satisfaction of both the Lucas County Sanitary Engineer and the Lucas County Engineer.

UNDERGROUND UTILITIES

The location of the underground utilities shown on the plans have been obtained by diligent field checks and searches of available records. It is believed that they are essentially

correct, but the Lucas County Sanitary Engineer does not guarantee their accuracy or completeness.

The exact location shall be the responsibility of the contractor. The contractor shall be

responsible for any and all damage to existing utilities by his operations.

UTILITY ADJUSTMENT

Any and all work required for public or private utilities will be done by and at the expense of their respective owners, unless otherwise noted on these plans. Utilities that are in conflict shall submit detailed plans of utility rearrangement to the Lucas County Sanitary Engineer and the Lucas County Engineer. Utility rearrangement plans shall be approved and permit issued prior to commencing work.

PERMIT REQUIREMENTS

The contractor shall obtain all required work permits. Copies of permits shall be submitted to the Lucas County Sanitary Engineer prior to construction.

Permit shall be obtained from the Board of County Commissioners one week prior to commencing work in the public right-of-way in Lucas County. Application for permit shall be made at the office of the Lucas County Engineer, One Government Center, Suite 870, Toledo, Ohio, 43604. Copies of application can be obtained at the office of the Lucas County Sanitary Engineer.

Permit shall be obtained from the Ohio Department of Transportation (O.D.O.T.) prior to commencing work within State Route right-of-way. Application for permit shall be obtained from the Ohio Department of Transportation (O.D.O.T.), 317 East Poe Road. Bowling Green, Ohio 43402.

UTILITY NOTIFICATION

The contractor shall notify all involved utility companies at least five (5) construction days before any construction work is performed in the area where utilities are located.

Notify Ohio Utilities Protection Service (O.U.P.S.) 2 working days before digging at a toll free number: 1-800-362-2764. Non-member utilities must be contacted directly.

Notify the Toledo Edison Service Dispatcher at phone: 249-5380, forty-eight (48) hours

7630 Finzel Rd.

Bowling Green, Ohio 43402

Phone: 1-419-353-8131

prior to excavation. The following is a list of the owners of utilities known to be within the limits of construction: (Absence from list does not exclude from involvement)

Lucas County Engineer Lucas County Sanitary Engineer One Government Center, Suite 870 1111 South McCord Road Toledo, Ohio 43604 Holland, Ohio 43528 Phone: 213-4540 Phone: 213-2926

City of Toledo Toledo Edison Company Division Of Water Distribution Edison Building 401 S. Erie Street 300 Madison Avenue Toledo, Ohio 43602 Toledo, Ohio 43604 Phone: 242-5040 16 Phone: 249-6148 Columbia Gas of Ohio ATT

Toledo, Ohio 43624 Whitehouse, Ohio 43571 Phone: 248-5024 Phone: 877-0413 Buckeye Cablevision, Inc. Ohio Department of 5566 Southwyck Blvd. Transportation (0.D.O.T.) Toledo, Ohio 43614 317 East Poe Road

Verizon North Williams Communications 300 W. Gypsy Lane Road 639 Oliver St. Bowling Green, Ohio 43402 Toledo. Ohio 43609 Phone: 1-419-352-6521 Phone: 244-1931

MAINTAINING TRAFFIC

be removed or covered.

701 Jefferson Avenue

Phone: 866-9800

Traffic shall be maintained and safety provisions made in accordance with Item 614 of the Ohio Department of Transportation's Construction and Material Specifications, the Ohio Manual of Uniform Traffic Control Devices for Streets and Highway (The Ohio Manual) and the requirements of this note.

Access to adjacent properties affected by any construction operations shall be maintained a all times unless permission to close the facility is granted by the owners and the Engineer

Traffic shall be maintained at all times during construction of this project. During periods

when the contractor is working, traffic may be limited to one-way flow on a minimum 10 lane, provided two flaggers are on the site to regulate flow. At all other times (nights, weekends, inclement weather) the road shall be re-opened to two-way flow on a minimum pavement equal to existing paved surface width. The following signs shall be provided on each approach to establish the closure of one lane. Road Construction Ahead (OW-128, 36" x 36") 1200' in advance of closure

Flagger Ahead (OW-125, 36" x 36") 350' in advance of the closure When the road is re-opened to two-way traffic, the road construction ahead sign shall

One Lane Road Ahead (OW-121, 36" x 36") 700' in advance of the closure

Whenever the permanent pavement surface will not be replaced same day as removal, a 2-1/2" thickness of Item 405 bituminous cold mix shall be required as a temporary replacement. Permanent replacement must be accomplished within 3 weeks, weather

If maintenance of traffic facilities, provisions for traffic control and safety are not remain in place while the one lane road ahead and the flagger ahead signs shall be removed accomplished to the satisfaction of the Lucas County Engineer, then the Engineer will notify the contractor of the nature and extent of such problems. If prompt corrective actions are not taken by the contractor, then such services will be deducted from monies due the contractor.

Payment for maintenance of traffic in accordance with Item 614 and the provisions of this note will be at the contract price for Item 614 maintaining traffic.

S FY

a Σ

mch Maple erst, N) 833-4

GIAN Syl

> Revie ANIT, ITY SA Plan OUN

U

Projects\Civi\\b157b6a\ROAD
Dwg. Scale: (Eng.) 1=1
t CAD Revision: 09/03/02
t Revision By: Gackstetter S:\Pr CAD Last Last

 \circ

Except as modified by these plans and by the detail specifications pertaining thereto, all work on this project shall be governed by the State of Ohio, Department of Transportation. Construction and material specifications dated January 1, 1997 and by such supplemental State specifications as may be in effect 14 calendar days prior to the award of this project. In the aforesaid specifications, the word "State", "Director" and "Engineer" shall be held to mean the Lucas County Sanitary Engineer or his representative.

The specifications of the American National Standards Institute (ANSI), American Water Works Association (AWWA) and the American Society of Testing and Materials (ASTM) herein referred to, unless otherwise noted, shall be the latest specifications of the respective

All material shall be manufactured in the United States of America. Copies of suppliers' invoices shall be submitted to the Engineer.

WATER SUPPLY PIPE

All water mains shall be ductile cast iron pipe, centrifugally cast. Pipe may be either of the mechanical or slip joint type.

Ductile iron pipe shall conform to ANSI—A21.51 (AWWA C—151). Minimum wall thickness shall meet the requirements of ANSI—A21.51, Table 51.4 (thickness Class 52 for 4 inch through 16 inch pipe).

Pipe bends and fittings shall be cement lined conforming to ANSI-A21.4 (AWWA C-104). The outside coating shall be a minimum 1/32 inch coal tar enamel. If coating is disturbed, it shall be replaced. All bolts, nuts, etc. used shall be Cor-ten steel and shall be coated after installation using an approved asphaltic base material.

Ductile iron fittings and specials shall conform to ANSI-A21.10 (AWWA C-110) or ANSI-A21.53 (AWWA C-153) with a minimum class of 250. Fittings shall have mechanical joint meeting ANSI-A21.11 (AWWA C-111).

Rubber gaskets shall be used on all mechanical joint fittings and shall conform to ANSI-A21.11 (AWWA C-111). Lead tipped rubber gaskets shall not be permitted. Bronze wedges shall be used at all push-on joints (two per joint).

MECHANICAL JOINT RESTRAINT SEE TABLE ON SHEET 3.

Pipe shall be anchored at dead ends, bends, tees, valves and other fittings requiring restraint by means of mechanical joint restraint. Mechanical joint restraint shall be incorporated in the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe, increasing its resistance as the pressure increases. Flexibility of the joint shall be maintained after burial. Glands shall be manufactured of ductile iron conforming to ASTM A 536-80. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 Bhn. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11 and ANSI/AWWA C153/A21.53 of latest revision. Twist-off nuts shall be used to insure proper actuating of the restraining devices. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1.

VALVE MANHOLE CASTINGS

Valve manhole frames and covers shall be 22 inch Neenah R—1771, or approved equal, ASTM—A48 with interchangeable pieces and machined horizontal bearing surfaces.

If castings are delivered to the job unpainted, they shall be given one coat of asphalt varnish or coal—tar pitch paint by the contractor.

VALVE MANHOLES

All main line valves shall be enclosed in standard valve manholes as shown in attached details. Manholes shall be constructed of either approved solid concrete (circular) block or approved precast manhole sections meeting ASTM C-478. Manhole walls shall rest on a Class 1 reinforced concrete or berm stone (ODOT Item 411) foundation as shown. If block is used, a 1/2" coat of cement mortar, inside and out, must be provided. Where pipe passes through the walls provide a gasketed flexible watertight connection (Kor-n-Seal, or equal), or 1/2" jute roping or neoprene gasket material.

Where specified, manhole steps meeting ASTM C-478 shall be provided and shall be of aluminum or reinforced polypropylene.

For precast sections, tops shall be of the eccentric or flat slab type and shall be constructed of Class 1 reinforced concrete. If precast sections are used, a minimum of 6" of adjusting rings must be provided.

Valve must be positioned inside manhole so as to allow unobstructed access to valve operating nut with valve wrench.

WATERLINE LENGTHS

All lengths shown on plan views are measured from centerline of valve or fittings if

MANHOLE/HYDRANT GRADES

Contractor shall adjust manhole rim grades as shown on drawings to actual surrounding grade or as directed by the Engineer. No additional payment is allowed for these adjustments

GATE VALVES

Gate valves shall be cast iron bodied, bronze mounted double disc with parallel seats, or resilient—seat, corrosion—resistant, 200 pound working pressure, non—rising stem type intended for use in vertical settings. Gate valves, 12" or smaller, shall be limited to valves made by Rennselear, Mueller, Kennedy, U.S. Valve or American Valve Companies AWWA C—500 or AWWA C—509 (resilient seat) as approved by Lucas County.

Resilient seat valves (AWWA C-509) are permitted for only 6" and 8" valves.

Valves are to open by turning right, or clockwise, and shall be furnished with a 2 inch square operating nut with the direction indicated by a clearly visible arrow cast into the

FIRE HYDRANTS

Hydrants shall be the manufacturer's latest and best design; however, the only acceptable models will be those in mass production a minimum of five (5) years. All hydrants shall conform to the latest AWWA standard specification C-502.

Hydrants shall be of the 5 1/4 inch valve opening compression type, opening against and closing with the water pressure, opening by turning the operating nut to the left, counterclockwise direction.

Hydrants to be used in the Lucas County distribution system shall be limited to the following (meeting AWWA C-502):

American Valve Model B84B Kennedy Guardian K-81A Mueller Super Centurion 250

All required thread sizes shall be of the same size and type used in Lucas County and the City of Toledo system.

Hydrant replacement parts, including extensions, caps, nozzles and all external and internal parts shall be of same manufacturer as hydrant. Contractor shall supply copies of invoices of replacement parts.

Caps shall have gaskets and be secured to the hydrant by hot—dipped, welded, galvanized chains of 3/16" diameter.

All hydrants to be field painted with machinery enamel, hydrant body yellow, caps and bonnets black. All paint will be supplied by the Lucas County Sanitary Engineer. Unused paint must be returned to Lucas County.

PROTECTION AND PAINTING

All iron parts of valves and accessories shall be painted before leaving the shojp with two coats of acceptable high grade bituminous paint.

The valves shall be protected at all times from rust or damage, both before amd after installation, until the completion of the contract.

TAPPING VALVES

Tapping sleeves and valves and 3/4 inch chlorination taps shall be furnished amd installed by the City of Toledo — Division of Water at the contractor's expense.

All excavation and backfill will be performed by the contractor.

INSTALLATION

The pipe shall be laid on a properly shaped and firm, granular bedding meetings requirements of Item 411 of the 1997 specifications, Ohio Department of Highways. Where conditions warrant, unsuitable material shall be removed and granular material conforming to the specifications shall be used for bedding.

All pipe and appurtenances shall be installed true to line, grade and location: with joints centered, spigots home; proper support and restraint provided; and all valve stems plumb. Care shall be used to lay the pipe so that it is supported by the full length of the barrel.

The pipe shall have approximately 5' of cover. Where conflicts occur with other utilities, a minimum of 18 inch vertical separation is required. Where special conditions warrant, the depth of cover may be changed.

BACKFILLING

All trenches and excavations shall be backfilled immediately after pipe is laid therein. No material shall be used for backfilling that contains stones, rock or pieces of masonry, frozen earth, debris or earth with an exceptionally high void content.

Trenches outside the limits of 5 feet from the back of curb shall be backfilled with thoroughly tamped granular material a minimum of 12 inches above the top of the pipe. The remainder of the trench may be filled with excavated material, insofar as iit is of suitable character.

Trenches under pavement and within 5 feet of back of the curb or edge of pavement shall be backfilled with thoroughly tamped granular material to the pavement subgrade. Granular backfill shall conform to the gradation requirements of Item 411 of the 1997 specifications.

STERILIZATION

The contractor shall chlorinate all pipe lines, and this shall be done prior to pressure testing unless otherwise directed by Lucas County. Disinfection shall meet or exceed AWWA C—651.

POLYETHYLENE TUBE (TO BE USED ON ALL 8" PIPE)

Where specified, the water line shall be field wrapped with a minimum 8 mil thick polyethylene tube meeting the requirements of AWWA C105, with the installation in accordance with Method A and the recommendations of the manufacturer. All overlaps and seams shall be completely taped. All rips, punctures and other damage to the polyethylene shall be completely repaired. Tape shall be 2 inch wide plastic backed adhesive tape which will bond securely to both metal surfaces and the polyethylene film. Fittings that require concrete thrust blocks shall be completely wrapped prior to placing blocking. All valve, fire hydrants and other appurtenances shall also be properly wrapped to either the ground line or the under side of the operating nut or valve. Cost of the above specified shall be included in the price bid for the water line item.

GRADING AND CLEANUP

Grading and cleanup shall follow closely behind any construction. This work shall include grading, to achieve positive drainage of work limits and cleanup including any removal from the site of any materials, spoil, etc.. This grading and cleanup shall be performed simultaneously with all construction phases of the project. All cost of equipment, material and labor needed to perform this grading and cleanup shall be included in the pertinent conduit item.

If the contractor does not continuously perform the work with reasonable progress to the satisfaction of the engineer, or fails to perform the grading and cleanup work, they will be notified by the Lucas County Engineer or the Lucas County Sanitary engineer. Upon receipt of this notification, the contractor has three (3) business days to commence deficient work as indicated in the written notification. liquidated damages as per the table in section 108.07 of O.D.O.T. construction and material specifications will be assessed for each calendar day beyond the three (3) business days that the work does not commence, and for each day thereafter that the work is not continuous.

POWER BROOM

The contractor shall power broom sweep the roadway at the end of each day if deemed necessary by the engineer. Costs are included in maintaining traffic, item 614

If the contractor fails to do any of the work as per general notes and standard specifications, the work will be done by Lucas County forces and all costs will be deducted from payments to the contractor. A minimum of \$500.00 will be deducted for each event.

PRESSURE TESTING

The contractor shall make pressure and leakage tests of all pipe lines unless otherwise directed by the Lucas County Sanitary Engineer.

Pressure tests shall be made in all pipe lines or valved sections thereof as directed by Lucas County. The contractor shall furnish the pump, pipe connections, taps, gauges and all other apparatus for making the test. Before testing of the main, the contractor shall flush the main under the Lucas County Sanitary Engineer's supervision to expel any water, dirt, chlorine, etc., in compliance with AWWA C-600.

EXISTING SURVEY POINTS

Survey monuments, bench marks and existing points damaged or disturbed by construction shall be replaced by a registered land surveyor at the contractor's expense. Should the contractor fail to properly replace these points, the Lucas County Engineer shall replace them at the contractor's expense after three (3) weeks notice.

SAFETY REQUIREMENTS

The contractor shall at all times follow all State and local safety requirements during construction of this project. Special care shall be taken during all trenching operations. Sheeting and bracing, cribbing, etc., must be installed as required by the Engineer to provide maximum safety to the contractor's workers in full compliance with Occupational Safety and Health Administration (OSHA) regulations.

INSURANCE

No contractor or subcontractor shall start any work until the approved certificate of liability insurance is filed with Lucas County naming Lucas County as the insured.

<u>OHIO E.P.A. REQUIREMENTS</u>

The Ohio Environmental Protection Agency requires a conformance to the 1987 edition of "Ten States Standards." This standard shall be equalled or exceeded for waterlines. Special attention shall be given to the following sections of Part 8.

- 8.0.1 Materials conform to AWWA standards 8.1.2 Minimum 6" diameter fire protection
- 8.5.3 Minimum 4' ground cover 8.5.5. Pressure testing AWWA C-600*
- 8.5.6. Disinfection AWWA C-651*
 8.6.2. 10' horizontal separation water main/sewer
- 8.6.3. 18" vertical separation water main/sewer
- 8.6.6. No entry and/or contact with sewer manhole* Note: It shall be the contractor's responsibility to perform this test properly and the

responsibility for an adequate supervision and approval rests with the appropriate governmental agency. Any deviation from the above will not be permitted unless specifically included in the general notes or otherwise shown on these plans.

In cases where one and/or more of the above mentioned Ohio E.P.A. standards fall short of the Lucas County standards, the latter shall govern.

OBSTRUCTIONS IN RIGHT-OF-WAY

The contractor shall not remove any mail boxes, paper boxes, private light posts, signs, utility markers, trees, shrubbery, fence, guardrail or other obstructions without the prior approval of the Engineer. The contractor shall notify all property owners and request that the property owner remove fences, shrubs, bushes, light posts, private signs and ornamental landscaping which includes but is not limited to railroad ties, statues, brick or stone, wash stone, wood chips, etc. from the public right—of—way.

If the owner of said obstruction does not remove or relocate said obstruction within a reasonable time (10 days maximum), the contractor shall remove the obstruction and place it at the direction of the Engineer. If mailboxes cannot be immediately replaced, the contractor shall provide for temporary mail service suitable to the U. S. Postal Service. Payment for this work shall be included in the unit price bid for the pertinent conduit item.

RESTORATION OF RIGHT-OF-WAY

All existing public and quasi-public features in the existing public right-of-way that are disturbed due to construction such as, but not limited to: mail boxes, curb, guardrails, driveways, swales, sewers, ditches, catch basins, berms, seeded areas, etc., shall be replaced to their original condition in accordance with current Ohio Department of Transportation specifications and in accordance with Item 603.09 to the satisfaction of the Lucas County Engineer.

Payment for this work shall be included in the price bid for lump sum, bid item — Restoration of right—of—way. However, no payment for this item shall be made and/or final acceptance of this project until such time as restoration of right—of—way is complete to the satisfaction of both the Lucas County Sanitary Engineer and the Lucas County Engineer.

STORM SEWER REPLACEMENT

Any storm sewer replaced is to be either Item 706.02, reinforced concrete circular pipe with "0" ring joints, Item 70611

REVIEW OF DRAINAGE FACILITIES

Before any work is started on the project, and again before final acceptance by the County, representatives of the Township, County Sanitary Engineer, County Engineer, and the contractor shall make an inspection of the existing sewers within the project limits which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Records of the inspections shall be kept in writing by the County.

All new conduits, inlets, catch basins and manholes constructed as a part of the project sha be free of all foreign matter and in a clean condition before the project will be acceptable by the County.

All existing sewers inspected initially by the above—mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the contractor's operations shall be corrected by the contractor to the satisfaction of the County Engineer.

Payment for all operations described above shall be included in the unit prices bid for the pertinent conduit items of the contract.

VIDEO TAPING

Prior to construction, the entire project length is to be video taped by the office of the consulting engineer or contractor

CONSTRUCTION STAKING

Construction staking for public waterlines shall be performed by the Lucas County Sanitary Engineer. Forty—eight (48) hours prior notice will be required for construction stakes. It is the contractor's responsibility to protect and preserve the construction stakes and to verify their correctness prior to laying pipe. Subdivision control points will be set by the consulting engineer.

PERMIT REQUIREMENTS

The contractor shall obtain all required work permits. Copies of permits shall be submitted to the Lucas County Sanitary Engineer prior to construction.

Permit shall be obtained from the Board of County Commissioners one week prior to commencing work in the public right—of—way in Lucas County. Application for permit shall be made at the office of the Lucas County Engineer, One Government Center, Suite 870, Toledo, Ohio, 43604. Copies of application can be obtained at the office of the Lucas County Sanitary Engineer.

UNDERGROUND UTILITIES

The location of the underground utilities shown on the plans have been obtained by diligent field check and searches of available records. It is believed that they are essentially correct, but the Lucas County Sanitary Engineer does not guarantee their accuracy or completeness.

The exact location shall be the responsibility of the contractor. The contractor shall be responsible for any and all damage to existing utilities by his operations.

UTILITY ADJUSTMENT

Any and all work required for public or private utilities will be done by and at the expense of their respective owners, unless otherwise noted on these plans. Utilities that are in conflict shall submit detailed plans of utility rearrangement to the Lucas County Sanitary Engineer. Utility rearrangement plans shall be approved and permit issued prior to commencing work.

UTILITY NOTIFICATION

hours prior to excavation.

Division Of Water Distribution

401 South Erie Street

Phone: (419)259-5086

The contractor shall notify all involved utility companies at least five (5) construction days before any construction work is performed in the area where utilities are located.

Notify Ohio Utilities Protection Service (0.U.P.S.) two (2) working days before digging, at a toll free number: 1-800-362-2764. Non-member utilities must be contacted directly.

Notify the Toledo Edison Service Dispatcher at Phone number: 249-5380 forty-eight (48)

The following is a list of the owners of utilities known to be within and/or reported to be within the limits of construction by the Ohio Utilities Protection Service (Absence from list does not exclude from involvement)

Lucas County Engineer
One Government Center, Suite 870
Toledo, Ohio 43604
Phone: (419)213-4540

Lucas County Sanitary Engineer
Columbia Gas of Ohio
333 South Erie St.
Toledo, Ohio 43602
Phone: (419)213-2926

City of Toledo
Columbia Gas of Ohio
ATT

701 Jefferson Ave.

Toledo, Ohio 43624

Toledo, Ohio 43602
Phone: (419) 242-5040

Toledo Edison Company
Edison Building
300 Madison Avenue
Toledo, Ohio 43604

Swanton, Ohio 43558
Phone: (419)248-5042

Ohio Department of Tra
(0.D.O.T.)
317 East Poe Road
Partition Company
Ohio 43604

Ohio Department of Transportation (O.D.O.T.) 317 East Poe Road Bowling Green, Ohio 43402 Phone: (419)353—8131

300 W. Gypsy Lane Road

Bowling Green, Unio 4340.

Phone: 1-419-352-6521

Verizon North

639 Oliver St. Toledo, Ohio 43609 Phone: (419)244–1931

7630 Finzel Rd.

Whitehouse, Ohio 43571

Phone: (419)877-0413

Williams Communications

Toledo, Ohio 43624

MAINTAINING TRAFFIC

Traffic shall be maintained and safety provisions made in accordance with Item 614 of the Ohio Department of Transportation's Construction and Material Specifications Ohio Manual of Uniform Traffic Control Devices for Streets and Highway (The Ohio Manual) and the requirements of this note.

Access to adjacent properties affected by any construction operations shall be maintained at all times unless permission to close the facility is granted by the owners and the Engineer.

Traffic shall be maintained at all times during construction of this project. During periods when the contractor is working, traffic may be limited to one—way flow on a minimum 10' lane provided two flaggers are on the site to regulate flow. At all other times (nights, weekends, inclement weather) the road shall be re—opened to two way flow on a minimum pavement equal to existing paved surface width. The following signs shall be provided on each approach to establish the closure of one lane.

Road construction ahead (OW-128, 36" \times 36") 1200' in advance of closure

One lane road ahead (OW-121, $36" \times 36"$) 700' in advance of the closure

When the road is re-opened to two-way traffic, the road construction ahead sign shall remain in place while the one lane road ahead and the flagger ahead signs shall be removed or covered.

Whenever the permanent pavement surface will not be replaced same day as removal, a 2—1/2" thickness of Item 405 bituminous cold mix shall be required as a temporary replacement. Permanent replacement must be accomplished with three (3) weeks, weather permitting.

If maintenance of traffic facilities, provisions for traffic control and safety are not accomplished to the satisfaction of the Lucas County Engineer and O.D.O.T. then the Engineer will notify the contractor of the nature and extent of such problems. If prompt corrective actions are not taken by the contractor, then such services will be deducted from monies due the contractor.

Payment for maintenance of traffic in accordance with Item 614 and the provisions of this note will be at the contract price for Item 614 Maintaining Traffic.

4/17/02 BEG 60% SUBN 5/17/02 BEG 90% SUBN 5/17/02 BEG Client Rev 6/11/02 BEG Final 6/17/02 BEG Issed For A 9/3/02 BEG Revised Page 1

Inik & Smith Group, Inc.

Group, Inc.

Gircle Telephone: (419) 891-222

Www.manniksmithgroup.cor.

Civil Engineering, Sur 1800 Indian Wood Circl

K Grou

chmarklaple Road
t, NY 14226

Bench 4053 Maple 1 Amherst, NY (716) 833-4

GARANT EAGIE tral Avenue Center Central Avenue

GENERAL NOTES

C3 / 15

S:\Projects\Civil\b157b6a\ROADWAY\B157B6. CAD Owg. Scale: (Eng.) 1=1 Last CAD Revision: 09/03/02 Last Revision By: Gackstetter Description: REVISED PER CITY

 \bigcirc

WATERLINES

ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT CITY OF TOLEDO, DIVISION OF ENGINEERING SERVICES, SPECIFICATIONS PART "A" SPECIFICATIONS, AND CONSTRUCTION STANDARDS WHERE APPLICABLE AND THE DEPATRMENT OF PUBLIC UTILITIES RULES AND REGULATIONS.

WATER MAINS SHALL BE INSTALLED, TESTED, AND DISINFECTED UNDER THE DIRECT SUPERVISION OF THE DIVISION OF ENGINEERING SERVICES.

TAPPING SLEEVES AND VALVES AND 3/4 INCH CHLORINATION TAPS SHALL BE FURNISHED AND INSTALLED BY THE DIVISION OF WATER AT THE CUSTOMER'S EXPENSE. ALL EXCAVATION AND BACKFILL SHALL BE PERFORMED BY THE CONTRACTOR.

ALL TAPS AND SERVICE CONNECTIONS 2 INCHES AND SMALLER WILL BE MADE BY THE CITY OF TOLEDO AT THE OWNER'S COST. EXCAVATION WILL BE PERFORMED BY THE CONTRACTOR.

IF TEES ARE INSTALLED FOR THE SMALL SERVICE CONNECTION, THE CITY OF TOLEDO WILL SUPPLY A CORPORATION STOP FOR THE TEE PRIOR TO TESTING. THE CORPORATION STOP WILL BE INSTALLED BY THE CONTRACTOR.

AFTER THE SMALL SERVICE CONNECTION IS PURCHASED BY THE OWNER, THE CITY OF TOLEDO WILL CONNECT FROM THE CORPORATION STOP TO THE PLUMBER'S LINE WITH 5 FEET OF COPPER AND INSTALL A CURB STOP AND CURB BOX. ALL EXCAVATION WILL BE MADE BY THE CONTRACTOR.

ALL PUBLIC AND PRIVATE UTILITY COMPANIES SHALL BE NOTIFIED BY THE CONTRACTOR, IN WRITING, AT LEAST SEVEN (7) DAYS IN ADVANCE OF BEGINNING ANY CONSTRUCTION OPERATIONS.

THE DIVISION OF WATER SHALL BE NOTIFIED (936-2847) AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY IN ORDER TO ARRANGE FOR INSPECTION OF THE PROJECT.

SPECIFICATIONS FOR MATERIALS

THE SPECIFICATIONS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE (AMERICAN WATER WORKS ASSOCIATION) AND THE AMERICAN SÒCIETY FOR TESTING AND MATERIALS HEREIN REFERRED TO, UNLESS OTHERWISE NOTED, SHALL BE THE LATEST SPECIFICATIONS OF THE RESPECTIVE ORGANIZATIONS AND MANUFACTURED IN THE UNITED STATES.

PIPE SHALL BE ANSI-A21.51 (AWWA C151) DUCTILE CAST IRON WITH A MINUMUM WALL THICKNESS METTING THE REQUIREMENTS OF ANSI-A21.51, TABLE 51.4 (THICKNESS CLASS 52 FOR A 4 INCH THROUGH 12 INCH).

FITTINGS SHALL BE DUCTILE CAST IRON CONFORMING TO ANSI-A21.10 (AWWA C110) WITH A MINIMUM CLASS OF 250 OR ANSI-A21.53 (AWWA C153) AND HAVE MECHANICAL JOINT ENDS AS SPECIFIED IN ANSI-A21.11 (AWWA C111).

ALL PIPES VALVES FITTINGS FOR FIRE SERVICES SHALL ALSO BE UL/FM APPROVED

ALL PIPE AND FITTINGS SHALL HAVE A CEMENT MORTAR LINING, CONFORMING TO ANSI-A21 (AWWA C104) AND A 1/32" COAL TAR ENAMEL OUTSIDE COATING. SPECIAL LININGS MAY BE REQUIRED AT THE REQUEST OF THE CITY FOR SPECIAL CONDITIONS.

VALVE MANHOLE FRAMES AND COVERS SHALL BE 22 INCHES, NEENAH R-1765, ASTM A-48, WITH INTERCHANGEABLE PIECES AND MACHINED HORIZONTAL BEARING SURFACES.

VALVE BOXES SHALL BE OF THE BUFFALO TYPE, THREE (3) PIECE ADJUSTABLE SCREW TYPE, BUFFALO PIPE AND FOUNDRY COMPANY, NO. B5001, ALABAMA PIPE COMPANY, NO. H10357, CLOW NO. F2450, AMETEK ROADWAY 5-245 WITH CAST IRON FULL FLANGED RING, OR APPROVED EQUAL.

GATE VALVES 12" AND SMALLER SHALL BE LIMITED TO VALVES MADE BY AMERICAN, KENNEDY, MUELLR OR U.S. VALVE COMPANIES MEETING AWWA SPECIFICATION C500 AND /OR C509 AS PURCHASED BY THE DIVISION OF WATER.

HYDRANTS SHALL BE LIMITED TO AMERICAN MODEL B-62-B OR B-84-B WITH BREAKABLE COUPLING, KENNEDY TRAFFIC MODEL NO. K-10DB OR GUARDIAN, MUELLER CENTURION MODEL A423, OR MEETING AWWA SPECIFICATION C502 AS PURCHASED BY THE DIVISION OF WATER.

INSTALLATION AND PRESSURE TESTING SHALL BE AS PER AWWA C-600. DISINFECTION SHALL MEET OR EXCEED AWWA C-651.

NO DEVIATIONS FROM THE ABOVE SPECIFICATIONS WILL BE PERMITTED. DETAILED SPECIFICATIONS CAN BE OBTAINED FROM THE DIVISION OF ENGINEERING SERVICES.

NOTE: THE OHIO ENVIRONMENTAL IPROTECTION AGENCY REQUIRES A CONFORMANCE TO THE 1987 EDITION OF "RECOMMENDED STANDARDS FOR WATER WORKS". THIS STANDARD SHALL BE EQUALED OR EXCEEDED FOR WATER LINES. SPECIAL ATTENTION SHALL BE GIVEN TO THE FOLLOWING SECTIONS OF PART 8:

MATERIALS CONFORM TO AWWA STANDARDS

MINIMUM 6" DIA. FIRE PROTECTION

MINIMUM 5' GROUND COVER PRESSURE TESTING AWWA C-600 OR

N.F.P.A. 24*

DISINFECTION AWWA C-651"* 10' HORIZONTAL SEPARATION WATER MAIN/SEWER

18" VERTICAL SEPARATION WATER

MAIN/SEWER NO ÉNTRY AND /OR CONTACT WITH SEWER MANHOLE

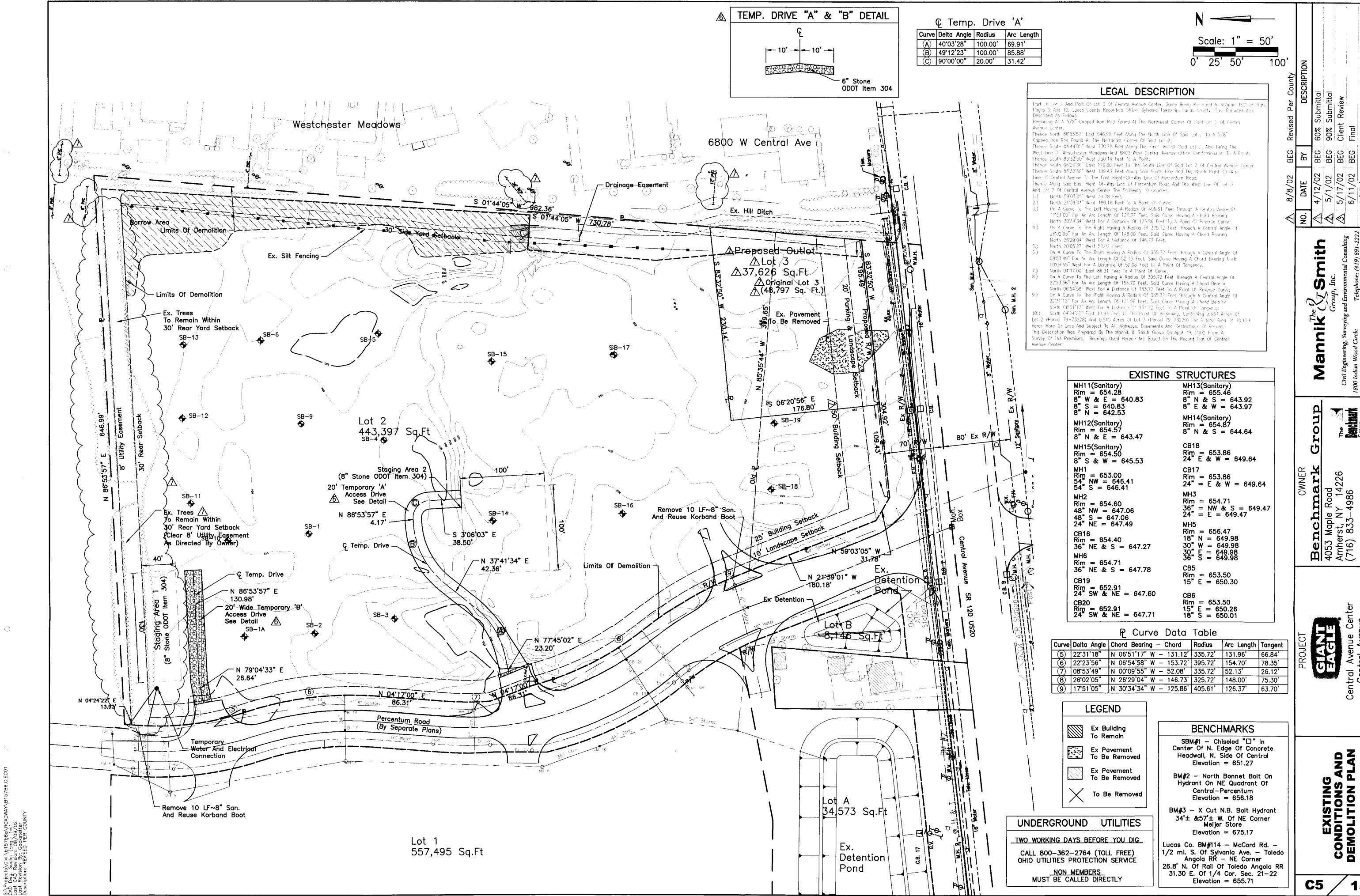
ANY DEVIATION FROM THE ABOVE WILL NOT BE PERMITTED UNLESS SPECIFICALLY INCLUDED IN THE GENERAL NOTES OR OTHERWISE SHOWN ON THESE PLANS. IN CASES WHERE ONE OR MORE OF THE ABOVE MENTIONED OHIO EPA STANDARDS FALL SHORT OF THE CITY OF TOLEDO'S DIVISION OF WATER STANDARDS, THE LATTER WILL GOVERN.

*NOTE: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THIS TEST PROPERLY AND THE RESPONSIBILITY FOR ADEQUATE SUPERVISION AND APPROVAL RESTS WITH THE APPROPRIATE GOVERNMENTAL AGENCY.

BEC BEC BEC BEC BEC § € € Group Group Z X Group Group Group total was known TOLEDO RLINE L NOTES GENERAL

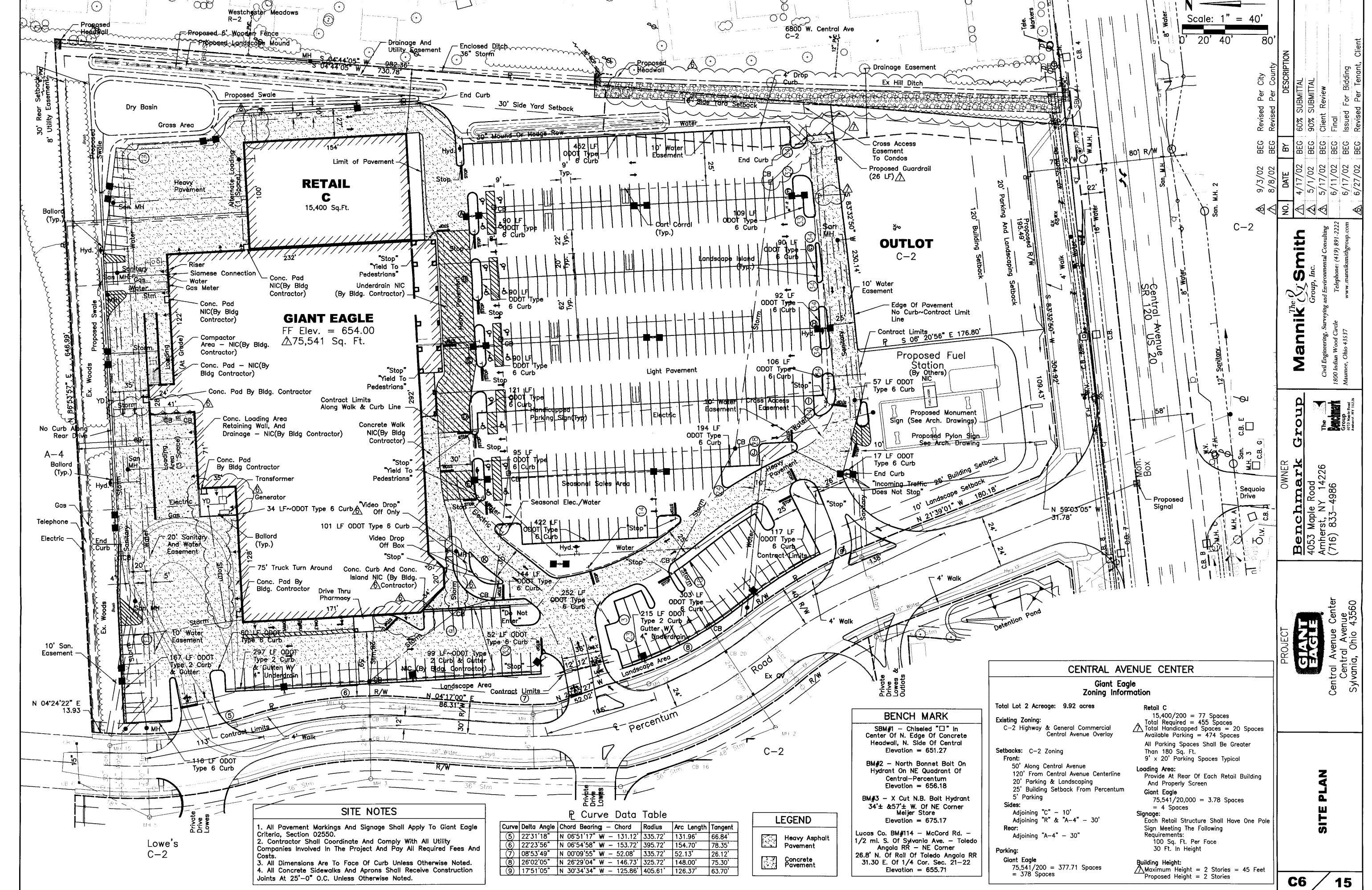
 \bigcirc

OF



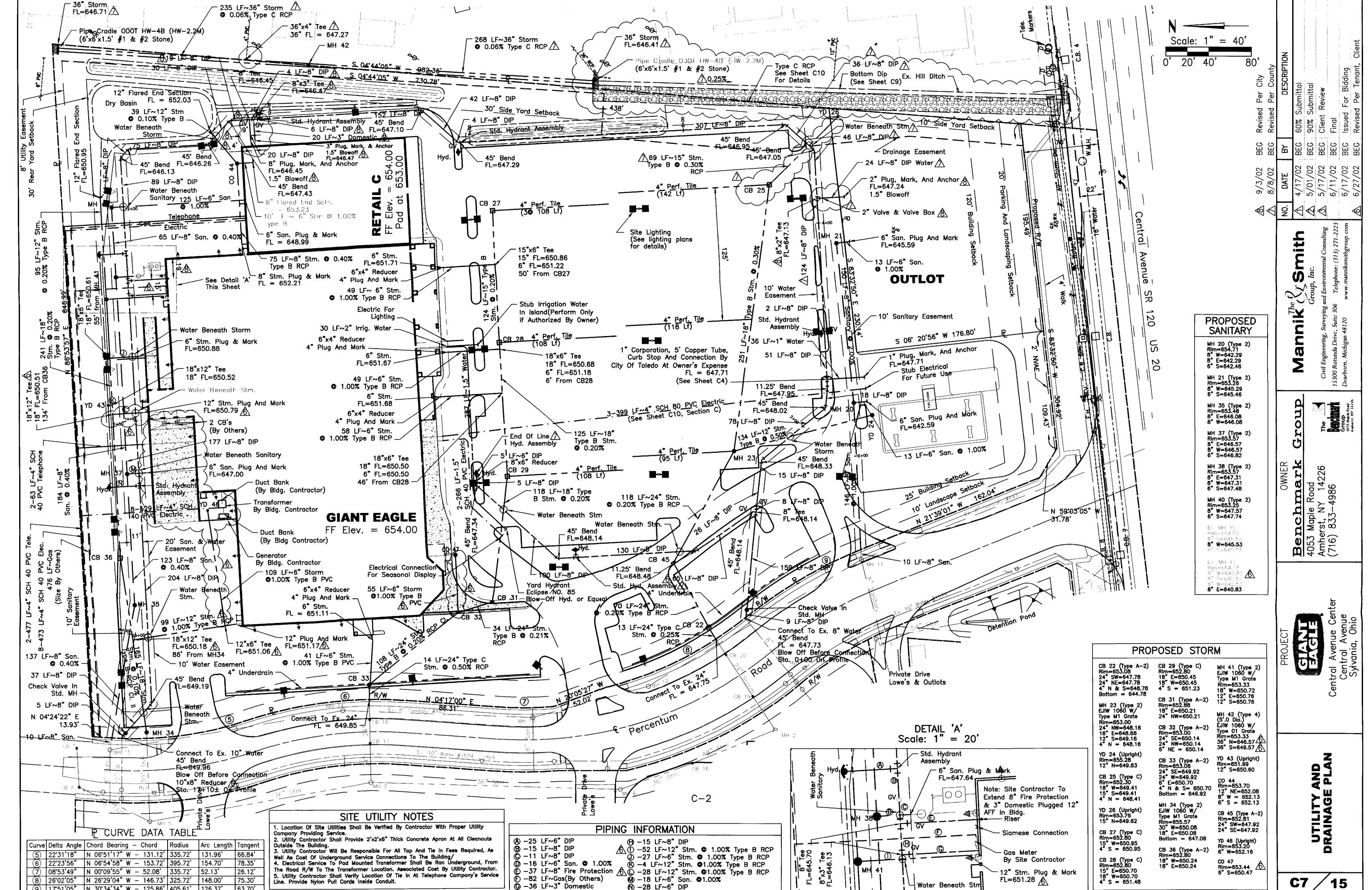
 \bigcirc

15



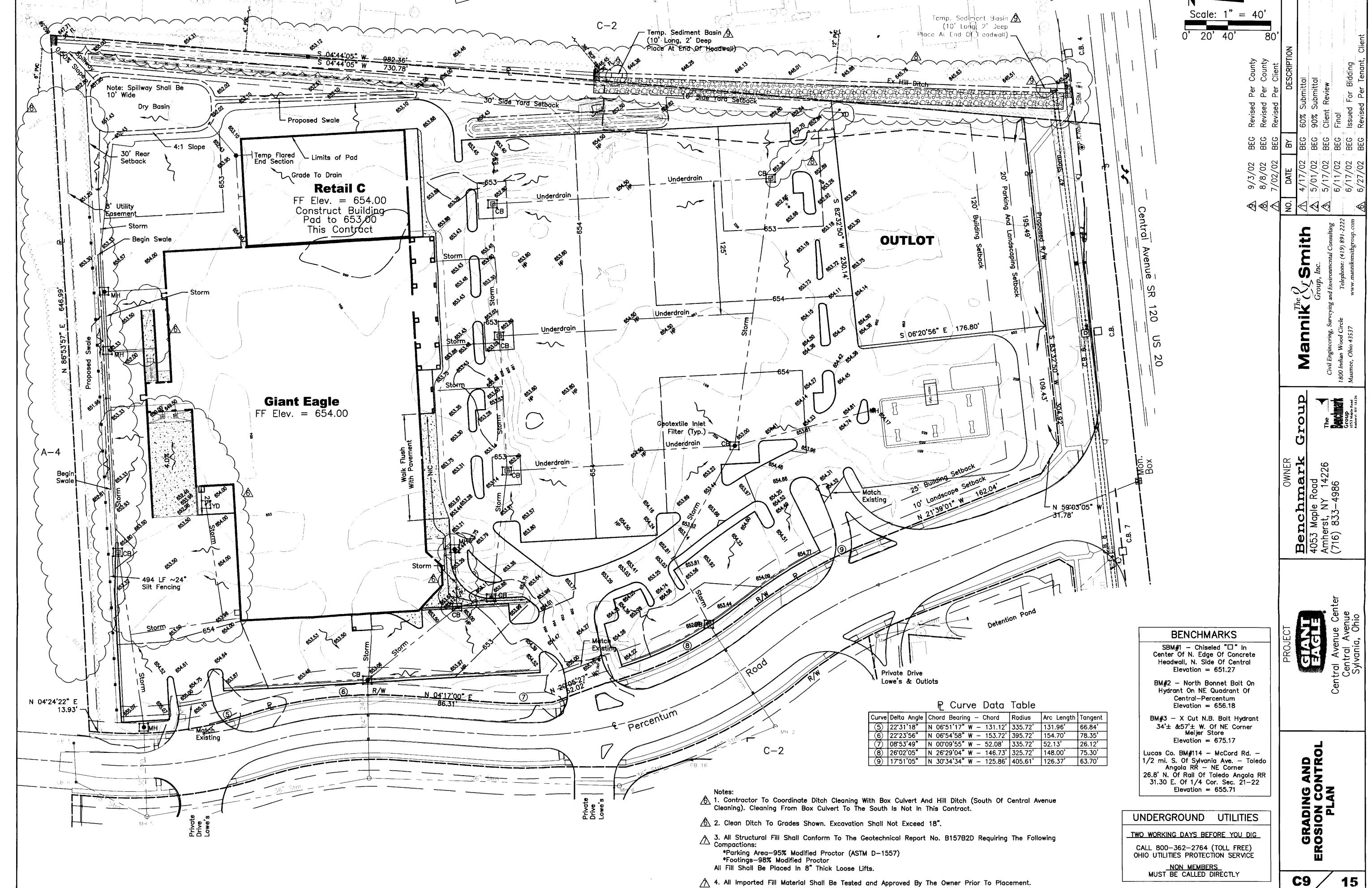
S:\Projects\Civil\b157b6a\ROADWAY\B157 CAD Dwg. Scale: (Eng.) 1=1 Last CAD Revision: 09/03/02 Last Revision By: Gackstetter Description: REVISED PER CITY

R157B6A



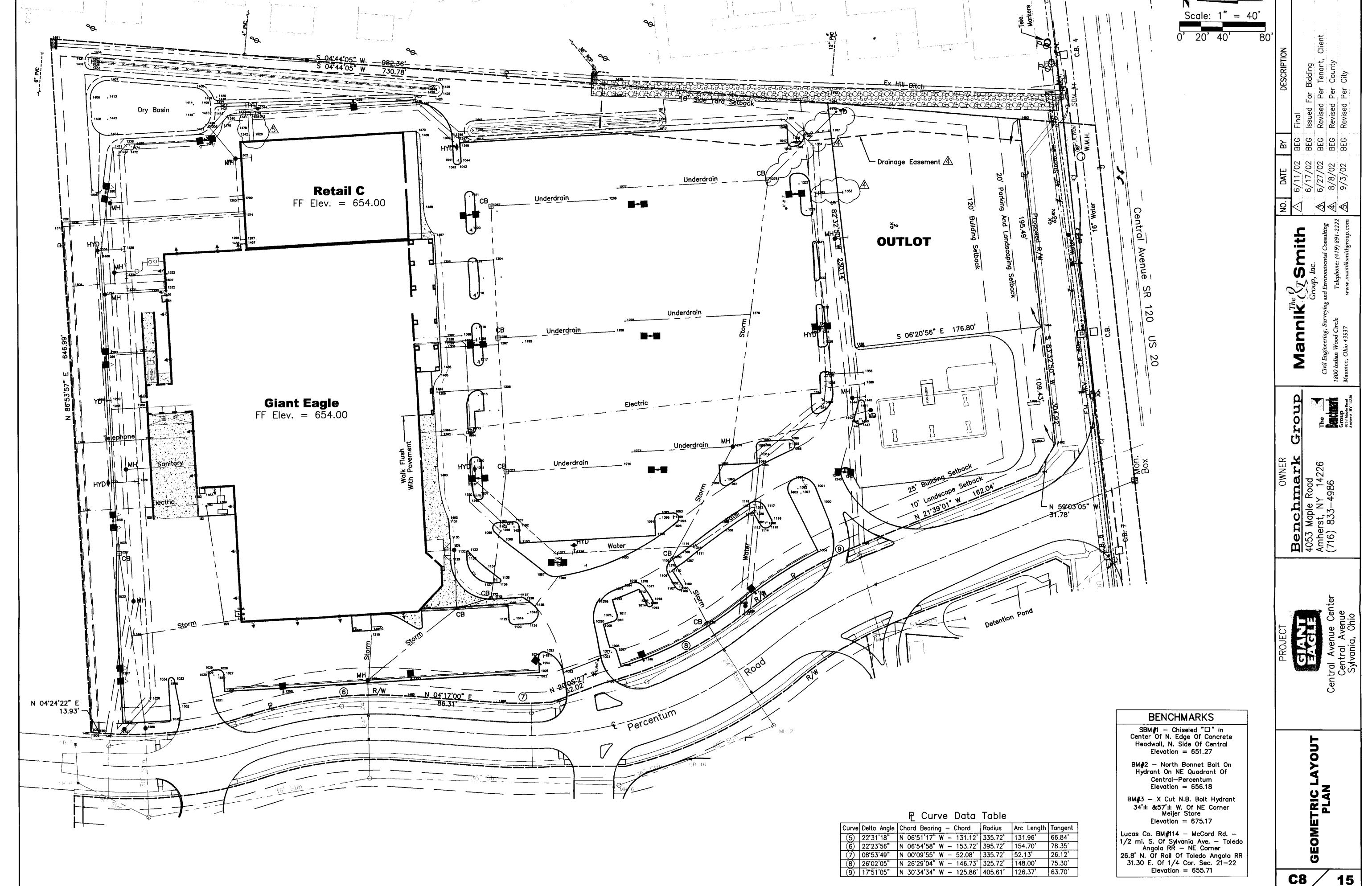
1 −28 LF~6" DIP

9 17'51'05" N 30'34'34" W - 125.86' 405.61' 126.37' 63.70'



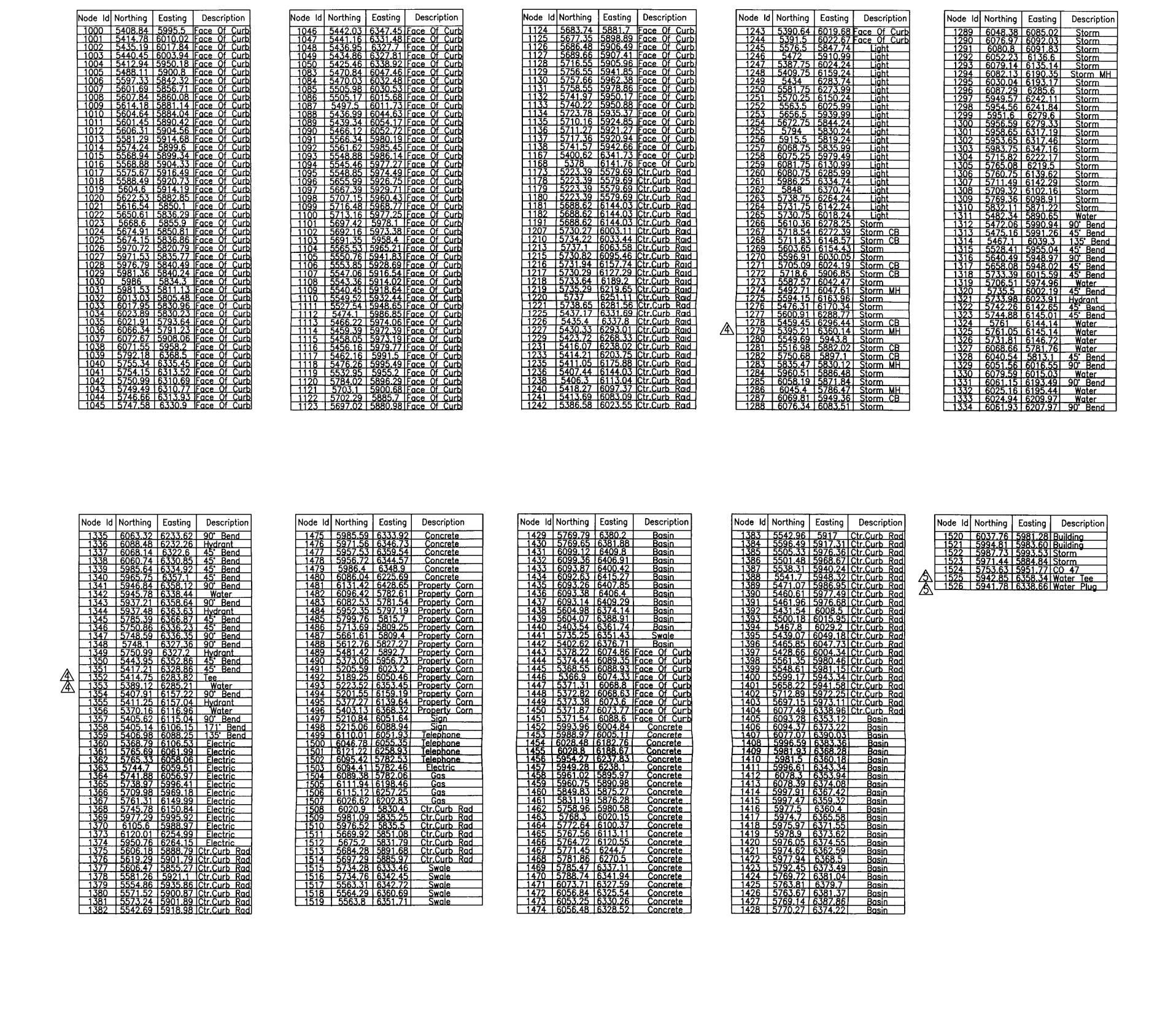
4. All Imported Fill Material Shall Be Tested and Approved By The Owner Prior To Placement.

S:\Projects\Civil\b157b6a\ROAL CAD Dwg. Scale: (Eng.) 1=1 Last CAD Revision: 09/03/02 Last Revision By: Gackstetter Description: REVISED PER COUN



S:\Projects\Civii\b157b6a\ROMECAD Dwg. Scale: (Eng.) 1=1 Last CAD Revision: 09/03/02 Last Revision By: Gackstetter Description: REVISED PER CITY

B15786/



SAGNE

(chi Maple F st, NY 833-4

Bene4053 Mc
Amherst
(716) 8

BEG BEG BEG BEG BEG

/11/02 /17/02 /27/02 /8/02 /3/02

mith

S

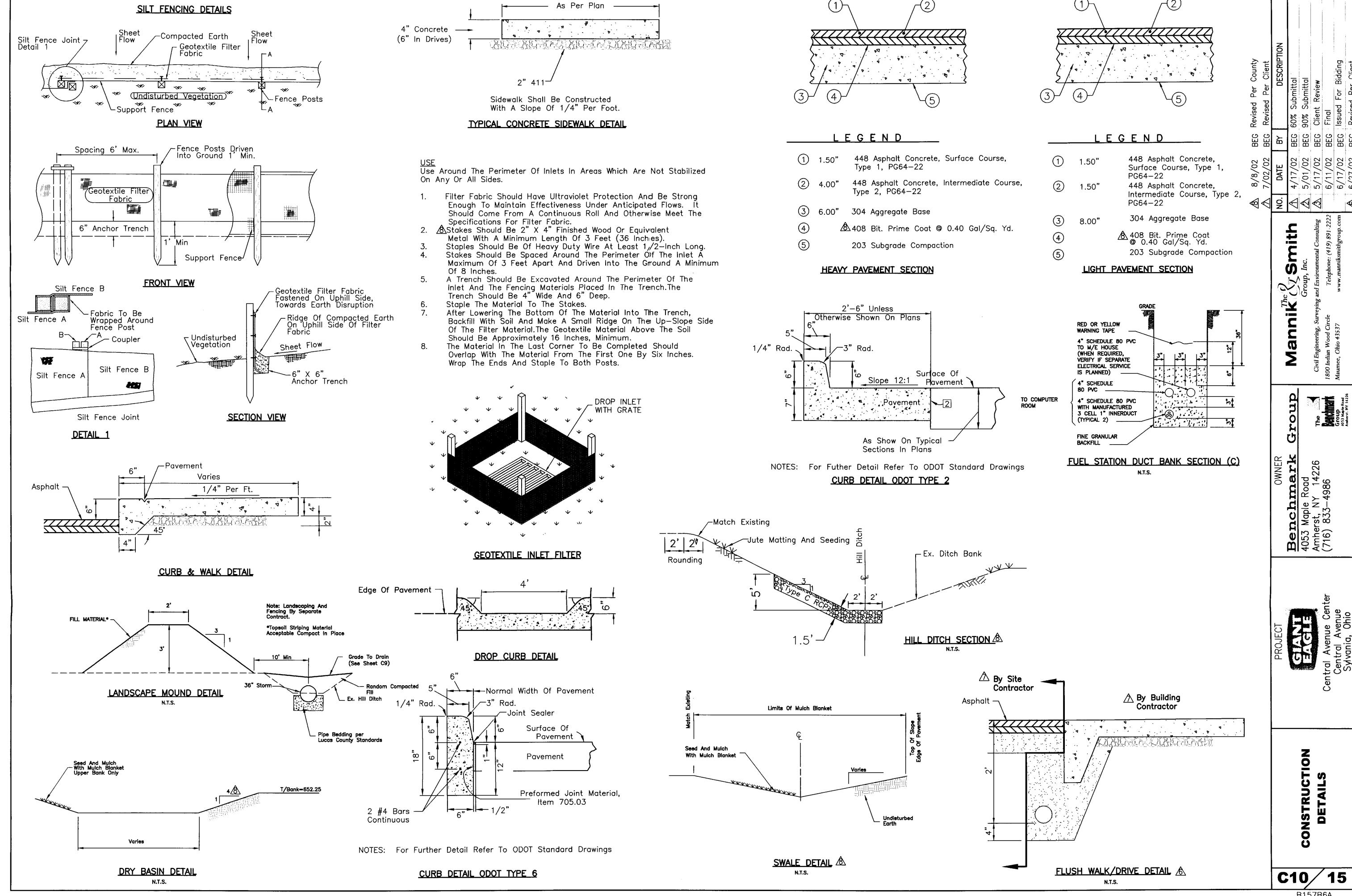
مين المراجع

annik

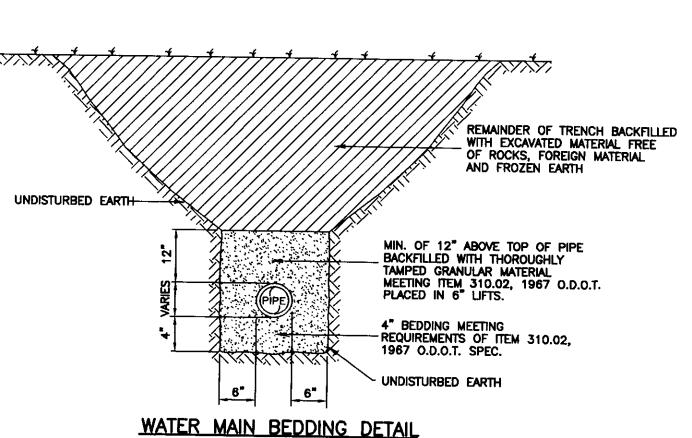
Ž

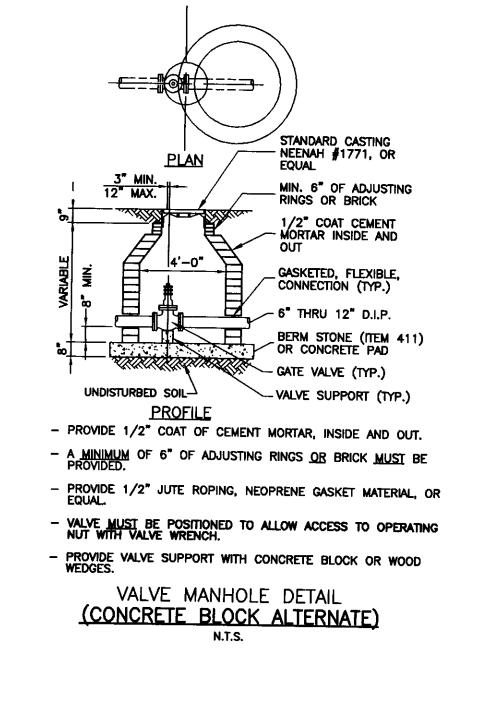
0

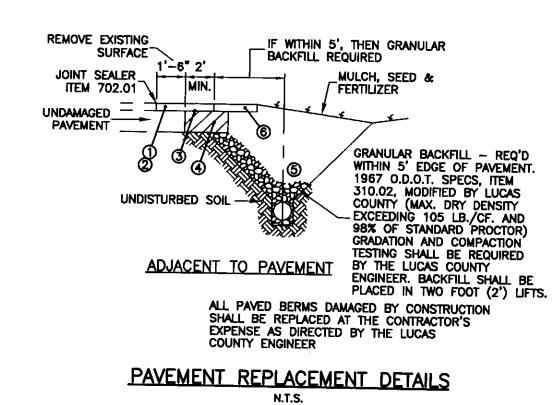
C8A 15



S:\Projects\Civii\b157b6a\ROAD CAD Dwg. Scale: (Eng.) 1=1 Last CAD Revision: 08/09/02 Last Revision By: Gackstetter Description: REVISED PER COUN





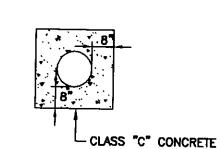




_STEEL ENCASEMENT PIPE

WOOD BLOCKS — BAND TO EACH LENGTH OF PIPE. ALLOW 1" (MAX.)

CLEARANCE BETWEEN BLOCKS & CASING PIPE

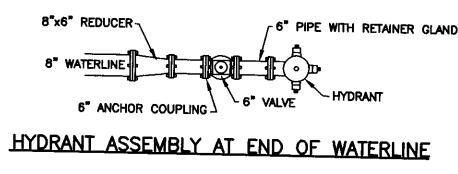


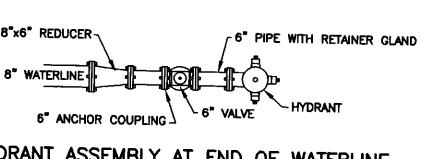
CONCRETE ENCASEMENT DETAIL LENGTH AS SHOWN ON DETAIL SHEETS. COST TO BE INCLUDED IN PRICE BID FOR PERTINENT CONDUIT ITEM.

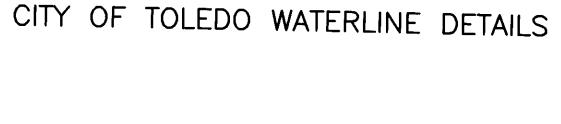
4" GROUTING

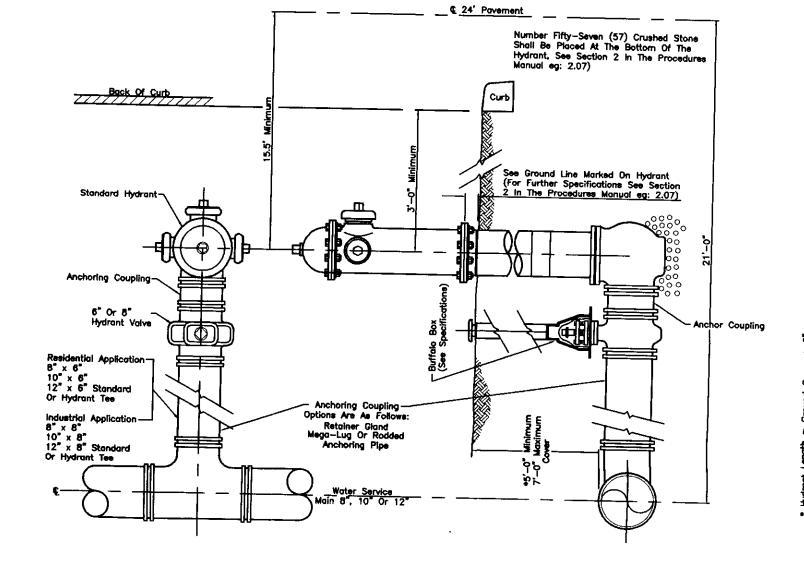
BULKHEAD-

NOTE:
WELD ALL ENCASEMENT PIPE
JOINTS ASPHALT COAT
EXTERIOR ENCASEMENT
PIPE GROUT FROM
BOTH ENDS



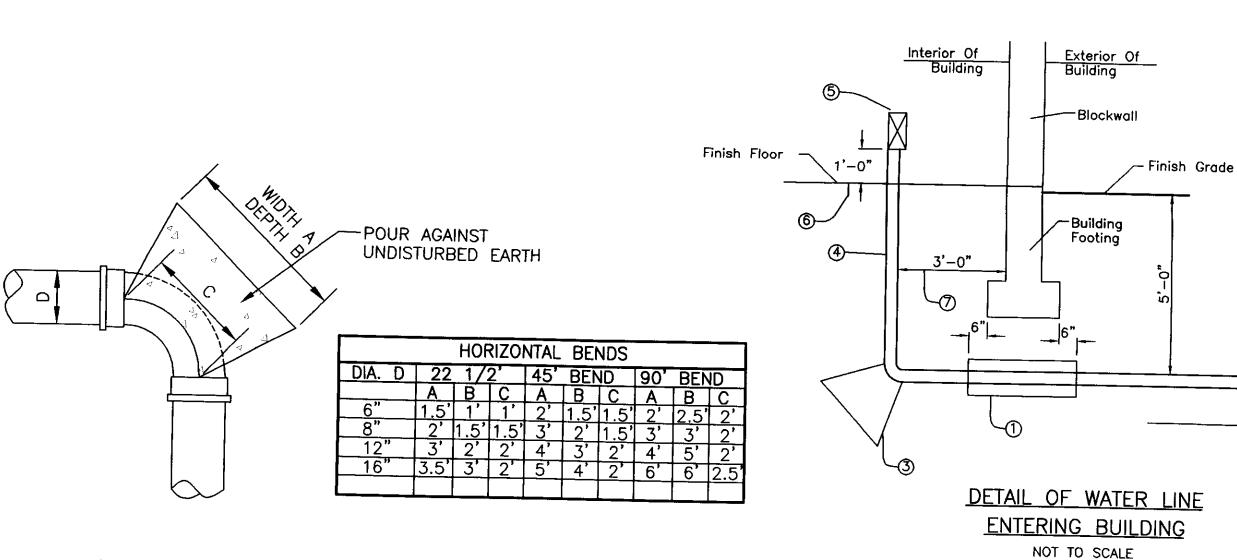






CITY OF TOLEDO STANDARD HYDRANT





NOTES:

- 1. Concrete For All Thrust Blocks Shall Be 3000 PSI, 28 Days Strength Min.
- 2. Bolts, Fittings & Joints Shall Be Kept Clear Of Concrete. 3. The Cross section Of The Thrust Blocks Shall Be Square.

THRUST BLOCK DETAILS

Provide 12" Diameter DIP Casing Sleeve. Extend Sleeve 6" Beyond Footing Bath Sides. After Placing With Grout.

2. Provide Thrust Block For 8" Fire Protection, See Detail 'A'
3. Provide Ductile Iron Pipe Inside Building.
4. Provide Cork Stop

Extend 1' Above Finish Floor And The Gate Valve Shall Be Install On Top Of Pipe With A Blank Flange Install On The Gate Valve.

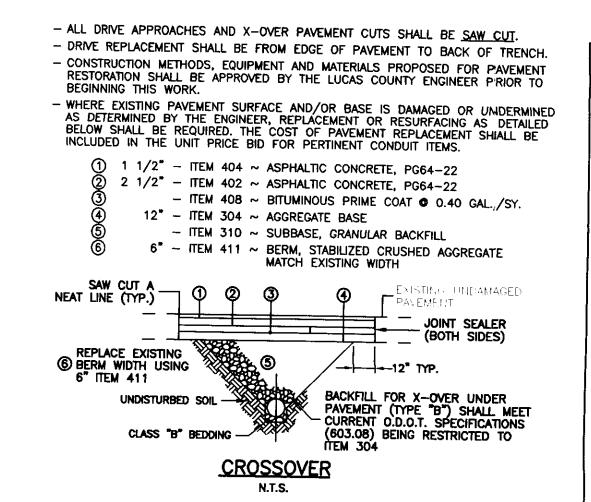
5. Water Main Shall Be Place 3' From The Interior Wall.

ATER DETA

Z

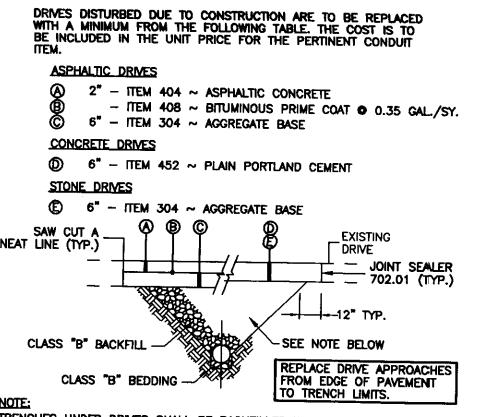
a

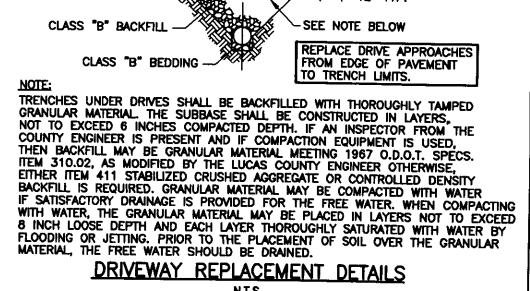
WATER MAIN BEDDING DETAIL

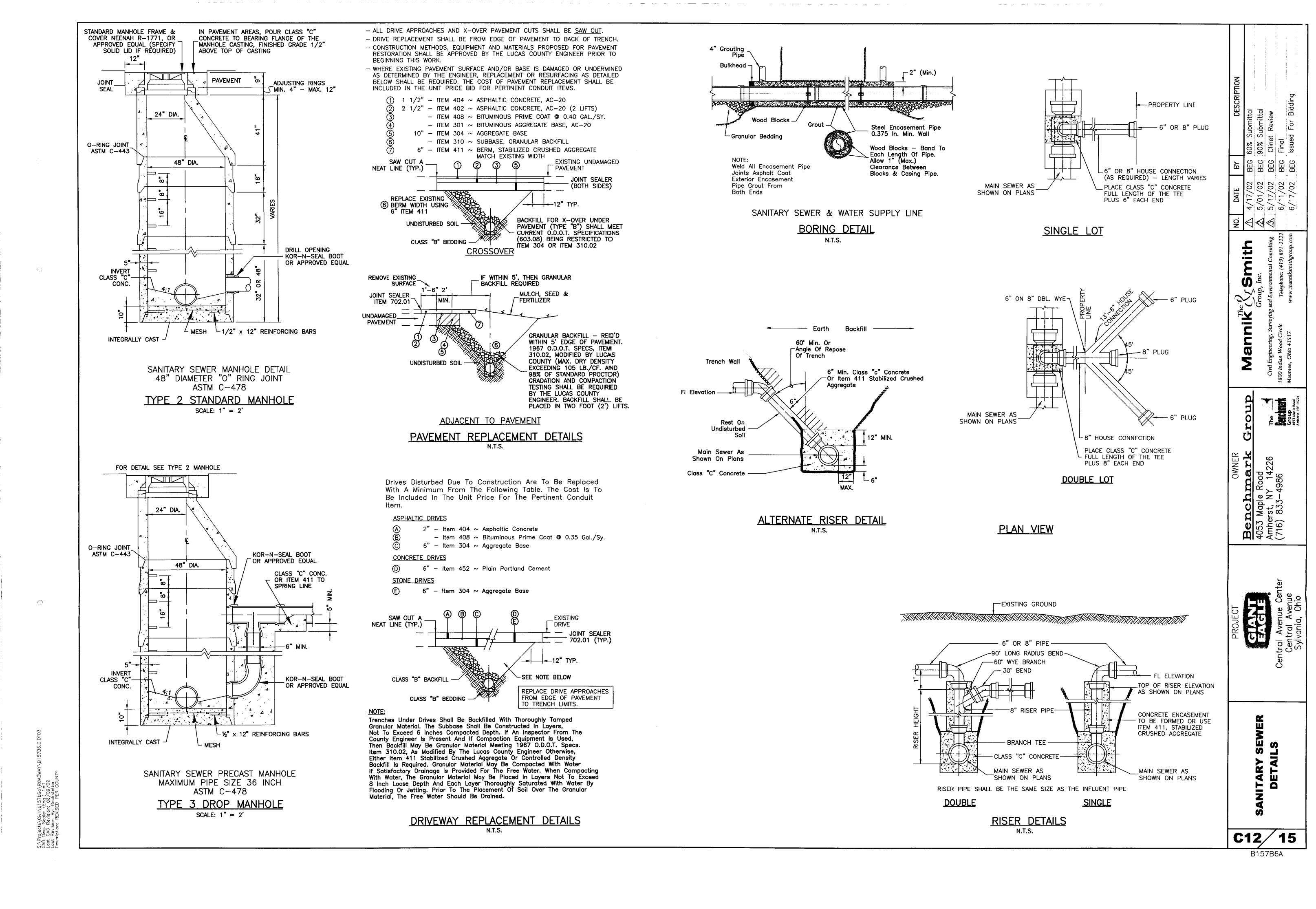


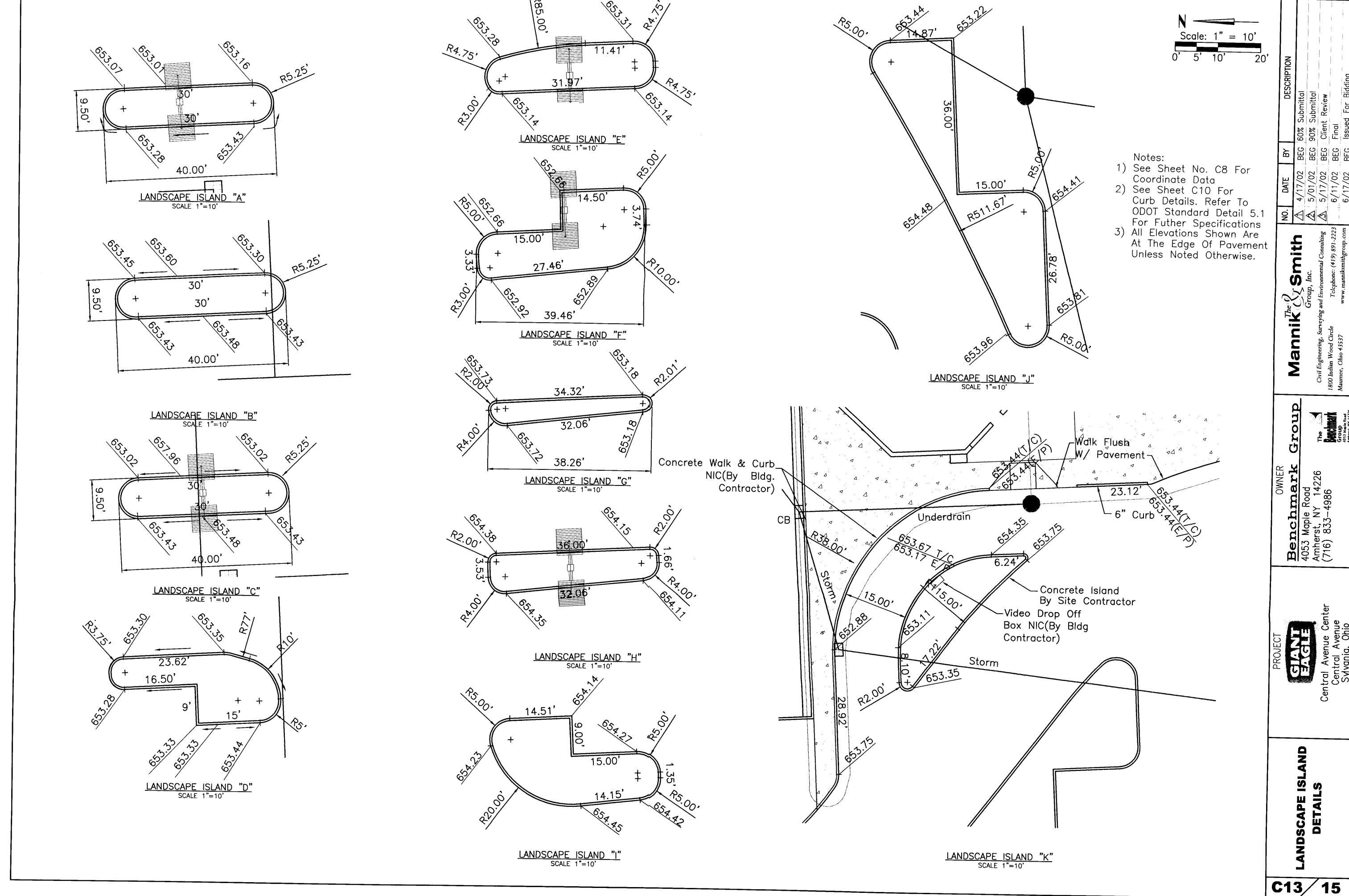
SANITARY SEWER & WATER SUPPLY LINE

BORING DETAIL

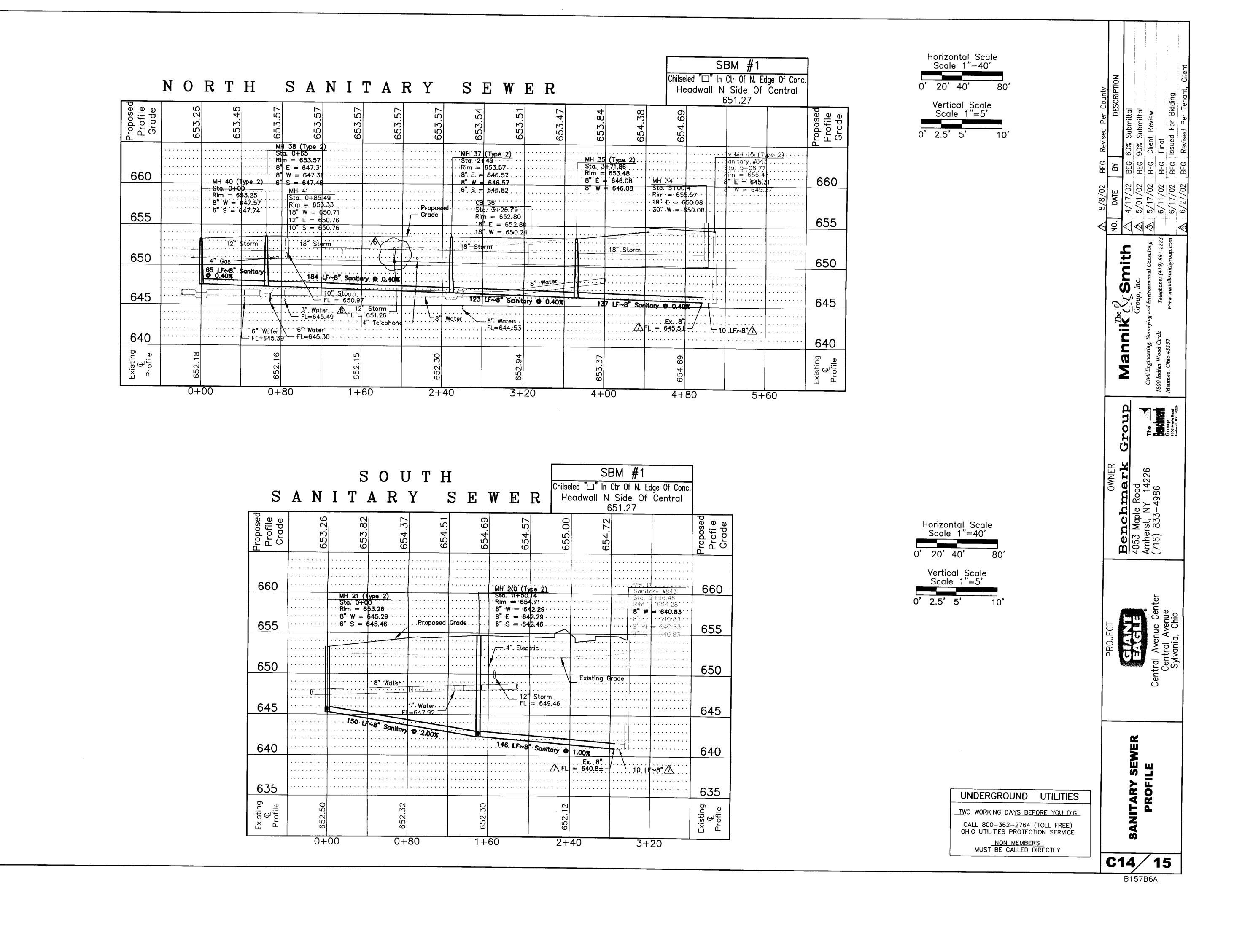








S:\Projects\Civil\b157b6a\ROADWAY\B157BCAD Dwg. Scole: (Eng.) 1=1 Last CAD Revision: 08/09/02 Last Revision By: Gackstetter Description: REVISED PER COUNTY



S:\Projects\Civi\\b157b6a\ROAD CAD Dwg. Scale: (Eng.) 1=1 Last CAD Revision: 09/03/02 Last Revision By: Gackstetter Description: REVISED PER CITY