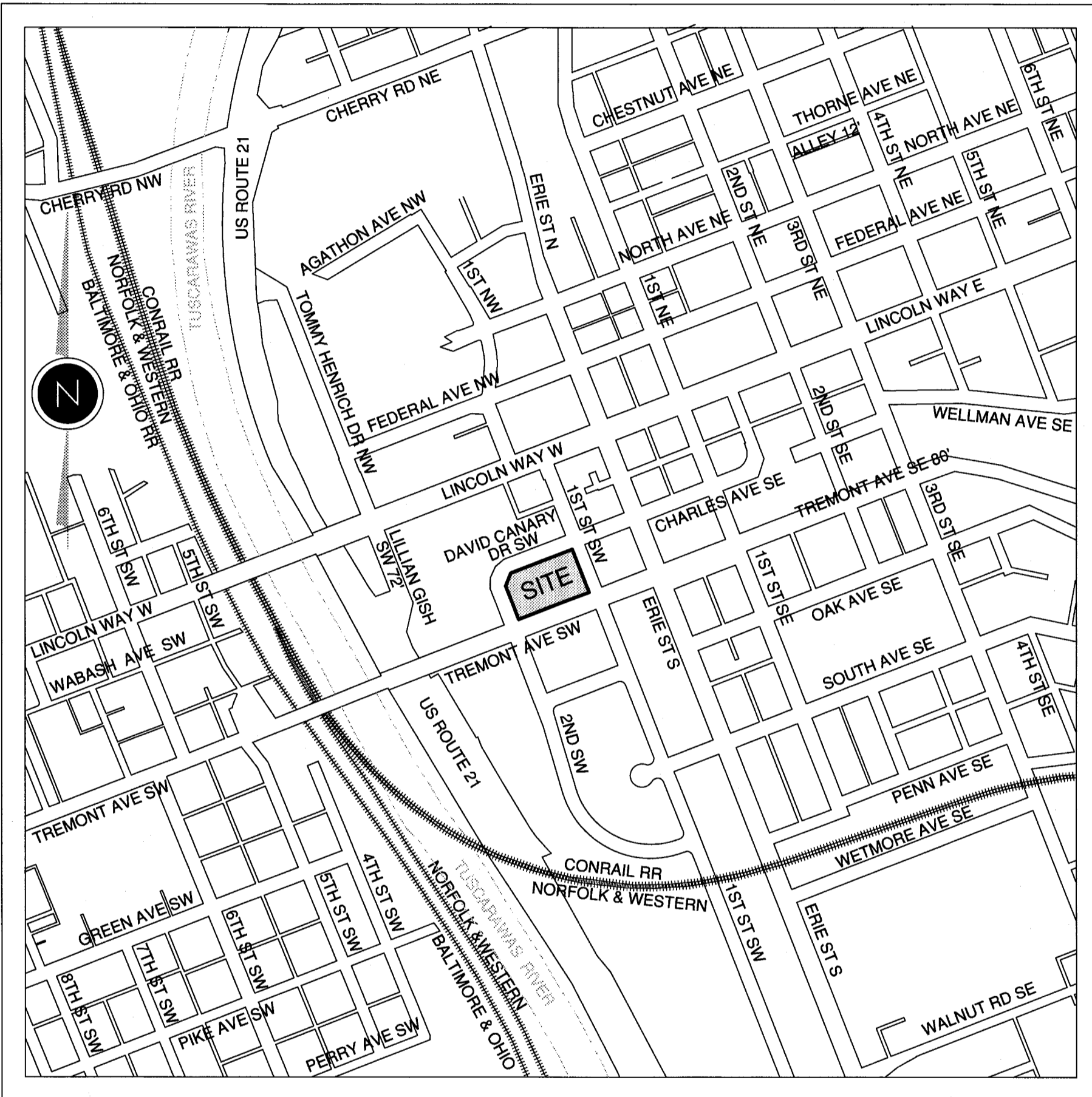


IMPROVEMENT PLANS FOR: MASSILLON SENIOR

SITUATED IN THE CITY OF MASSILLON, COUNTY OF STARK,
AND STATE OF OHIO



VICINITY MAP
1" = 500'

FLOOD ZONE NOTE
THE SUBJECT PROPERTY IS LOCATED WITHIN FLOOD ZONE "C", DEFINED AS "AREA OF MINIMAL FLOODING" AS SHOWN ON THE U.S. DEPARTMENT OF HOMELAND SECURITY, FEDERAL EMERGENCY MANAGEMENT AGENCY, NATIONAL FLOOD INSURANCE PROGRAM, FLOOD INSURANCE RATE MAP FOR CITY OF MASSILLON, STARK COUNTY, OHIO DESIGNATED AS MAP NUMBER 390517 0005 C, BEARING AN EFFECTIVE DATE OF JULY 5, 1982.

PERMIT NOTES
SIGN PERMIT IS REQUIRED FOR THIS SITE, CONTACT CITY OF MASSILLON BUILDING DEPARTMENT FOR PERMIT REQUIREMENTS.

CONCRETE / DRIVEWAY PERMIT IS REQUIRED FOR THIS SITE, CONTACT CITY OF MASSILLON ENGINEERING DEPARTMENT FOR LICENSE AND PERMIT REQUIREMENTS.

RIGHT OF WAY PERMITS ARE REQUIRED FOR ANY WORK IN PUBLIC RIGHTS-OF-WAY, CONTACT CITY OF MASSILLON ENGINEERING DEPARTMENT FOR LICENSE AND PERMIT REQUIREMENTS.

PROJECT BENCHMARK

USGS BRASS DISK ON CONCRETE MONUMENT
STAMPED MASSILLON 1934, AT INTERSECTION
OF LINCOLN WAY AND 1st STREET SE
NAVD88 ELEVATION 947.12

Only approved signed plans by the
City Engineer are to be used for
construction.

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PLANS PREPARED BY: M NEFF DESIGN GROUP

Matthew C. Neff
MATTHEW C. NEFF, P.E., P.S.
PROFESSIONAL ENGINEER # 49050
PROFESSIONAL SURVEYOR #7315

3.08.10
DATE

MUNICIPAL APPROVAL

APPROVED BY THE MASSILLON CITY ENGINEER THIS ____ DAY OF _____, 20__.

KEITH A. DYLEWSKI, P.E.

DEVELOPER:

MASSILLON SENIOR LLC
5309 TRANSPORTATION BLVD
CLEVELAND, OHIO 44125
JENNIFER BAUS
(216) 475-8900

CIVIL ENGINEER:

M NEFF DESIGN GROUP
14855 BROADWAY AVENUE, SUITE 100-2B
MAPLE HEIGHTS, OHIO 44137
MATTHEW NEFF, P.E., P.S.
(216) 663-8820

UTILITY OWNERSHIP

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

WATER:	AQUA OHIO 870 THIRD STREET NW MASSILLON, OHIO 44647 (330) 832-7600	ELECTRIC:	OHIO EDISON 1910 W MARKET BLDG #1 AKRON, OHIO 44313 (330) 384-4839
GAS:	DOMINION EAST OHIO 1201 EAST 55th STREET CLEVELAND, OHIO 44103 (216) 736-6675	TELEPHONE:	AT&T 229 WEST 7th STREET 10th FLOOR AKRON, OHIO 44308 (330) 384-2237
SANITARY:	CITY OF MASSILLON 151 LINCOLN WAY EAST MASSILLON, OHIO 44646 (330) 830-1722	CABLE:	MASSILLON CABLE TV 814 CABLE CT NW MASSILLON, OHIO 44648 (330) 833-4134

2 WORKING DAYS
BEFORE YOU DIG
CALL TOLL FREE 800-362-2764
OHIO UTILITIES PROTECTION SERVICE



IMPROVEMENT PLANS FOR:
MASSILLON SENIOR
TITLE SHEET

Revisions	Number	Date	Description
	1	10.16.09	CHFA 50% Submittal
	2	12.23.09	City Comments Addressed
	3	01.27.10	City Comments Addressed
	4	03.05.10	City Comments Addressed

PLANNERS | ENGINEERS | SURVEYORS
mNEFF design group
DESIGNING LAND FOR YOUR WORLD
14855 Broadway Avenue, Suite 100-2B • Maple Heights, Ohio 44137
tel: 216.663.8820 • fax: 216.663.8821
www.mneffdesign.com



Horizontal Scale	None	Vertical Scale	None
Original Submission	Oct 16, 2009	Last Plot Date	Mar 05, 2010
Drawn By	DLN	Checked By	
Project Number	7426	Field Crew	FS & BH
Sheet	1	of	11

SECTION 1 – GENERAL

SUBSOIL INVESTIGATION:

All contractors, prior to submitting bids for this improvement, will be permitted to dig test holes within the limits of this proposed work. At least 48 hour notice must be given to the owner, and the location of all test holes is subject to the approval of the owner. The contractor shall be responsible for all damage resulting from digging these holes and he shall restore all property to a condition similar or equal to that existing before such digging was done. Rock excavation shall not be paid for as a separate item, but shall be included in the unit price bid for other various items.

CONSTRUCTION AND MATERIAL SPECIFICATIONS:

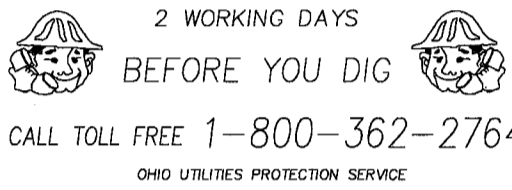
Material and/or workmanship shall follow the "State of Ohio, Department of Transportation, Construction and Material Specifications", dated January 1, 2008 or any subsequent issues thereof. Throughout the plans the reference to specific ODOT item numbers are indicated. Material and workmanship shall also conform to the engineering design and construction manual of the City of Massillon and the ordinances of the City of Massillon where conflicts occur in the above. The engineer of the City of Massillon shall determine the governing authority. Any defects in the construction including materials or workmanship shall be repaired or replaced as directed by the City Engineer. Reference throughout these plans to "The Engineer" shall be the owner's engineer. "City Engineer" shall be the Engineer of the City of Massillon.

ELEVATION DATUM:

All elevations shown on these plans are in feet above the U.S.G.S. datum plane.

UTILITIES:

Prior to construction, the contractor shall call Ohio Utilities Protection Service (OUPS), at 1-800-362-2764. The following is believed to be the list of utility owners within the limits of construction:



Any and all work required for removal, relocation and/or new construction facilities for private or public utilities will be done by and at the expense of the respective owners unless otherwise noted on the plans. The procedure as outlined in the Ohio revised code section 163.64. Regarding utility identification shall be followed. Namely the owner will notify the underground utility protection service and the individual utility 48 hours prior to commencing work. The underground utility owner must stake, mark or otherwise designate the location of its facility. The locations of underground utilities shown on these plans have been obtained by diligent field checks and searches of available records.

PRE-CONSTRUCTION CONFERENCES:

At least five days prior to the start of actual construction work, if required by the City, a pre-construction conference shall be held at the direction of the City of Massillon Engineer, all appropriate City officials, and the owner's engineer. The contractor or his authorized superintendent shall be present along with any and all private utility company representatives. This meeting will be for coordination and procedure review prior to commencing any physical work.

STATIONING AND LOCATIONS:

Stationing and location indicated on these plans are approximate. All locations and items called out by station are subject to adjustment in the field as directed by the engineer.

INSPECTION:

The cost of all inspection, permits, or tests shall be paid by the contractor and included in the unit prices bid. Unless noted otherwise the initial payment for inspection or testing by the City of Massillon or its agents shall be paid from a deposit made by the owner to the City of Massillon. But by verification of invoice from the City of Massillon these fees will be deducted from payments due the contractor. No final estimate will be issued until all fees for inspection and testing have been invoiced by the City of Massillon or its agents.

The contractor shall not commence with any form of construction without contacting the offices of the City of Massillon Engineer and Aqua Ohio to arrange for inspection. If any change in the work schedule becomes necessary, it will be to avoid unnecessary inspection costs. If no modification is made in regards to cancellation of work, the contractor will be charged for the inspection time incurred.

PRECAUTION AGAINST UTILITY DAMAGE:

The contractor shall take all necessary precautions at no expense to the owner to avoid damage to existing underground utility lines during the installation of the proposed improvements. It may be necessary to change the alignment or the flow line elevation of proposed sewers due to various existing utility lines with approval of the Engineer. The contractor shall make investigations to determine the location of existing utility lines prior to the installation of the proposed improvements. Such investigations shall be at no additional cost to the owner.

DUST CONTROL:

The contractor shall supply all labor, material and equipment necessary such as calcium chloride, water, or a motorized dust-free street sweeping device, as directed by the engineer, to maintain all roadways being worked for access to the construction site. Payment for all dust control measures shall be included in the unit price bid for other various items.

SECTION 2 – SITE CLEARING

PART I: GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of contract, including general and supplementary conditions and specifications sections, apply to work of this section.

DESCRIPTION OF WORK:

Extent of site clearing is shown on drawings. Site clearing work includes, but is not limited to:

- Removal of trees and other vegetation
- Clearing and grubbing
- Removing existing walks, curbs, pavement, headwalls and utilities as indicated
- Maintain positive drainage during construction
- Removal of existing dwelling

JOB CONDITIONS:

Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, parking, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, parking, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

Protection of existing improvements: Provide protection necessary to prevent damage to existing improvements indicated to remain in place.

Protect improvements on adjoining properties and on owner's property.

Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.

PART II: EXECUTION

SITE CLEARING:

General: Remove trees, shrubs, grass and other vegetation, improvements, or obstructions interfering with installation of new construction. Remove such items from owner's property and dispose of off-site in a legal manner. Removal includes digging out stumps and roots.

Clearing and Grubbing: Clear site of trees, shrubs and other vegetation, except for those indicated in the plans.

Completely remove stumps, roots, and other debris protruding through ground surface.

Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.

Place fill material in horizontal layers not exceeding 6" loose depth, and thoroughly compact to adjacent original ground.

Removal of Improvements: Remove existing above grade and below grade improvements necessary to permit construction and other work as indicated.

DISPOSAL OF WASTE MATERIALS:

Removal from Owner's Property: Remove waste materials from owner's property and dispose of off-site in a legal manner, as directed by the engineer.

Excess excavation is to be placed on the site as indicated by the plans. After placement of all excess excavation, the area shall be graded so that no depressions exist which will collect or pocket water. After grading is complete a mixture of 90% perennial dry grass and 10% Alsike clover shall be seeded in accordance with ODOT item 659.09.

The excess excavation pile shall be ringed with a silt fence or a straw bale barrier.

SECTION 3 – EARTHWORK

PART I: GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of the contract including general and supplementary conditions and specifications sections, apply to work of this section.

DESCRIPTION OF WORK:

Extent of earthwork is indicated on drawings.

Preparation of subgrade and subbase material for walks and pavements is included as part of this work.

Excavation for Mechanical/Electrical Work: Excavation and backfill required in conjunction with underground mechanical and electrical utilities, and buried mechanical and electrical appurtenances is included as work of this section.

Definition: "Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

QUALITY ASSURANCE:

Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

Testing and Inspection Service: Owner will engage soil testing and inspection service for quality control testing during earthwork operations.

SUBMITTALS:

Test Reports Excavating: Submit following reports directly to the engineer from the testing services, with copy to contractor, if testing is performed.

Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shutoff of services if lines are active.

Use of Explosives: The use of explosives is not permitted.

Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.

Operate warning lights as recommended by authorities having jurisdiction.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

PART II: PRODUCTS

DEFINITIONS:

Satisfactory soil material (available on site): Naturally deposited granular material (this is the only on site material suitable for fill and replacement fill where undercutting is required).

Unsatisfactory soil materials: Shall be as determined by the testing agency.

Subbase Material: Mixture of crushed limestone with a gradation is compliance to ODOT specification item 304.

Drainage Fill: Washed, evenly graded mixture of limestone or suitable crushed gravel, with 100% passing a 1-1/2" sieve and not more than 5% passing a number 4 sieve.

Backfill and Fill Materials: Satisfactory soil materials free of clay, rock or gravel larger than 2" in any dimension, debris, waste, frozen material, vegetable and other deleterious matter. No slag allowed.

PART III: EXECUTION

EXCAVATION:

Classifications: The following classifications of excavation will be made when rock excavation is encountered in work.

Earth excavation includes excavation of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished or removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the engineer. Unauthorized excavation, as well as remedial work directed by the engineer shall be at contractor's expense.

Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the engineer.

Additional Excavation: When excavation has reached required subgrade elevations, notify the engineer who will make an inspection of conditions.

If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated materials as directed by the engineer.

Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

Stability of Excavations: Slope sides 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 materials excavated.

Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent soil changes detrimental to stability of subgrades.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavation to collecting on run-off areas. Do not use trench excavations as temporary drainage ditches.

Clean and maintain all catch basins during and at the completion of the work.

Material Storage: Stockpile satisfactory excavated materials where directed until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

Locate and retain soil materials away from edge of excavations, do not store within drip line of trees indicated to remain.

Dispose of excess soil material and waste materials as herein specified.

Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown.

Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 6" to 9" clearance on both sides of pipe conduit.

Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations.

For pipes or conduit 5" or less in nominal size and for flat bottomed multiple-duct conduit units do not excavate beyond indicated depths. Hand excavate bottom cut to accurate elevations and support pipe or conduit on undisturbed soil.

For pipes or conduit 6" or larger in nominal size, tanks and other mechanical/electrical work indicated to receive subbase, excavate to subbase depth indicated, or, if not otherwise indicated to 6" below bottom of work to be supported.

When rock is encountered during trench excavation, the rock will be removed to a minimum depth of 6" below the establishing pipe invert. A compacted bedding of subbase material is to be placed in the trench prior to installing pipe.

Grade bottoms of trenches as indicated, nothing under pipe bells to provide solid bearing for entire body of pipe.

Do not backfill trenches until test and inspections have been made and backfilling authorized by the Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.

Trenches below pavement shall be as detailed on the drawings.

BACKFILL AND FILL:

General: Place acceptable soil material in layers to required subgrade elevations for each area classification listed below. No slag allowed.

In excavations, use satisfactory excavated or borrow material.

Under grassed areas, use satisfactory excavated or borrow material.

Under walks and pavements, use premium backfill.

Under piping and conduit, bedding to conform with uniform standard Type I bedding.

Backfill excavations as promptly as work permits, but not until completion of the removal of concrete formwork and removal of trash and debris.

Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. All trash and debris to be removed from site.

COMPACTION:

All Compaction, Subgrade Compaction and Concrete Cylinder Reports shall be furnished to the Engineer.

Control soil compaction during construction to provide the minimum percentage of density specified for each area as determined for a Standard Proctor Test according to ASTM D698.

Provide not less than ninety-eight percent (98%) density of soil material compacted within two percent (2%) of the optimum moisture content for the actual density of each layer of soil material in place, and as approved by the soil engineer.

STRUCTURES:

Compact the subgrade and each layer of fill material or backfill matter per ODOT Item 203.

LAWN AND UNPAVED AREAS:

Compact the subgrade and each layer of fill material or backfill material.

Compact the upper 12" of filled areas, or natural soils exposed by excavating, at 90% of maximum density.

WALKS:

Compact the subgrade and each layer of fill material or backfill material per ODOT Item 203.

PAVEMENTS AND RIGHT OF WAY EMBANKMENT:

Compact the subgrade and each layer of fill material or backfill material per ODOT Item 203.

GRADING:

General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

PAVEMENT SUBBASE COURSE:

General: Subbase course consists of placing subbase material, in layers of specified thickness over subgrade surface to support a pavement base course.

Grade Control: During construction, maintain lines and grades including crown and cross-slopes of subbase course.

Placing: Place subbase course material on prepared subgrade in layers of uniform thickness conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.

When a compacted subbase course is shown to be 6" thick or less, place material in a single layer. When shown to be more than 6" thick, place material in equal layers, except no single layer more than 6" or less than 3" in thickness when compacted.

MAINTENANCE:

Protection of Graded Areas: Protect newly graded areas from traffic or erosion. Keep free of trash and debris. Repair and reestablish grades in settled, eroded and rutted areas to specific tolerances.

Reconditioning Compacted Areas: Where completed 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.

DISPOSAL OF EXCESS AND WASTE MATERIALS:

Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, excess excavated material, trash and debris, and dispose of it off owner's property.

ROCK CHANNEL PROTECTION:

All rock channel protection shall be in accordance with ODOT Item 601.09 Type A, B, C, or D as indicated on plans and shall be installed immediately after the installation of the pertinent storm structure, material shall be limestone or natural aggregate.

No concrete shall be allowed.

Comply with requirements of applicable sections for concrete work required in connection with sewer collection system work.

SECTION 4 – SEWER COLLECTION SYSTEM

PART I: GENERAL

RELATED DOCUMENTS:

All sewer work to be done in accordance with the City of Massillon requirements.

Drawings and general provisions of the contract, including general and supplementary conditions and specifications sections, apply to work of this section.

DESCRIPTION OF WORK:

Extent of sewer collection system work is shown on drawings.

Sewer collection system work includes, but is not limited to, the following:

- Storm sewer conduits
- Sanitary sewer conduits
- Manholes, frames and covers
- Catch basins, frames and gratings

Comply with the requirements of applicable sections for excavation and backfilling required in connection with sewer collection system work.

SANITARY SEWERS:

Clean Water Connections Prohibited: Roof drains, foundation drains, and other clean water connections to the sanitary sewer system are prohibited.

PART II: PRODUCTS

CONDUIT MATERIALS:

General: Furnish ells, tees, reducing tees, wyes, couplings, increasers, crosses, transitions and end caps of same type and class of material as conduit, or of material having equal or superior physical and chemical properties as acceptable to the engineer.

SANITARY SEWERS:

All sanitary sewer conduit shall be:

A. Polyvinyl chloride (PVC) ASTM D-3034 (SDR 35) with gaskets conforming to ASTM F 477 and joints per ASTM D-3212. The end of all sewer stubs shall be sealed with a plug or cap, the cost of which shall be included in the unit price bid for sanitary sewers.

**For sanitary sewers in excess of 13 feet deep, SDR 26 is required.

SANITARY WYE BRANCHES, RISERS AND CONNECTIONS (6" DIAMETER):

The material for all wye branches, risers, and connections shall conform to the following requirements:

1. Polyvinyl chloride (PVC) ASTM D-3034 (SDR 35) with gaskets conforming to ASTM F 477 and joints per ASTM D-3212. Wye branches shall be preformed wyes.

After the wye branch, riser, and connection have been installed, the end of the connection shall be sealed with an air tight spigot cap or air tight plug and the cap or plug shall be pointed yellow. The height of the riser called out in the plans is the vertical change in elevation, however, payment shall be for the actual length of risers and connection. Complete in place, measured along the length of the pipe. The end of the sanitary connection shall be marked with a 2" x 2" hardwood stake, extending vertically from the end of the connection to a point approximately three feet above the surface of the ground.

CITY OF MASSILLON SANITARY SEWER NOTES:

1. Sanitary sewer and appurtenances shall be constructed according to City of Massillon Engineering Department specifications and details in effect at the time of construction.

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

3. The contractor shall notify all property owners along the route of the sanitary sewer at least three (3) days prior to start of construction.

4. The contractor shall alert the utilities protection service at least 48 hours prior to start of construction.

5. The contractor shall be responsible for properly maintaining existing sanitary flow during the construction and testing of the proposed improvements. The contractor's methods for maintaining flow must be approved by the City of Massillon Engineering Department at the pre-construction meeting.

6. All rough grading to within six (6) inches of finished grade shall be completed within the right-of-way and easements prior to sanitary sewer construction.

7. Bulkheads shall be erected in existing manholes were taps for new mainline sewers are made and shall remain in place until the new sewers are complete, tested and approved. In cases where a bulkhead would interrupt the flow from existing service connections, the bulkhead shall be placed in the first new manhole upstream of the existing manhole.

8. Minimum vertical clearance between sanitary sewer and waterline shall be 18 inches. Minimum horizontal separation shall be 10 feet.

9. Sanitary sewer service laterals shall be 6-inch diameter and be laid at no less than 1.0% grade.

10. For new subdivision construction, sewer service laterals shall extend 12" into the lots or beyond furthest utility, whichever is greater, when the main sewer is in a street right-of-way, and shall terminate at the easement line when the main sewer is in an easement. For other sewer extensions, sewer service laterals shall terminate at the right-of-way line or the easement line, whichever is applicable.

11. Service stacks shall be ductile iron pipe regardless of main sewer material. A cast iron tee shall be installed in the main sewer. Concrete encasement will not be required.

12. Minimum cover over sanitary sewer shall be 4 feet.

13. Acceptable sanitary sewer pipe materials are as follows:

Material Description	Pipe	Joint	Installation Specifications
PVC Smooth exterior	ASTM D-3034	ASTM D-3212	ASTM D-2321
VCP Extra Strength	ASTM C-700	ASTM C-425	ASTM C-12
DCIP (class S2)	AWWA C-151	AWWA C-110/C-111	AWWA C-151
ABS Composite	ASTM D-2680	ASTM D-2235	ASTM D-2680
PVC Composite	ASTM D-2680	ASTM D-2564	ASTM D-2680

14. All sanitary sewers, 8-inch diameter and larger, must pass an internal television inspection. The contractor shall provide complete internal inspection videotape to the City of Massillon Engineering Department. The videotaping procedure shall be in accordance with City of Massillon Engineering Department Specifications.

15. A deflection test shall be required for all flexible pipe of 8-inch diameter and larger. The test shall be conducted be conducted at least 30 days after completion of backfill and shall be in accordance with City of Massillon Engineering Department specifications. The allowable deflection rate shall not exceed five (5%) percent. Testing shall be in accordance with ASTM D-3034.

16. All Sanitary sewers must pass a low pressure air test, which shall be conducted in accordance with ASTM F-1417 (plastic pipe) or ASTM C-828 (clay pipe). The maximum allowable test leakage shall be 100 Gal/inch of diameter/mile/day.

17. Manhole construction shall meet the requirements of ASTM C-478 and C-443. All manholes shall be air/vacuum tested in accordance with and meet all the requirements of ASTM C-1244.

18. Connections to existing manholes shall be core drilled, with benches and channels formed and repaired as necessary.

19. Any manhole drop attachments shall be "outside" type.

20. Manhole top of casting elevations may require adjustment during site grading. Manhole covers may be buried. Upon completion of construction and restoration, all manholes, proposed and existing, shall be in conformance in all respects with City of Massillon Engineering Department specifications and details.

21. Pre-construction meeting is required, contact City of Massillon Engineering Department at 330-830-1722 and Stark Soil and Water District at 330-830-7700.

22. Sanitary permits are required, contact the City of Massillon Engineering department for license and permit requirements.

STORM SEWERS:

Storm Conduit: All storm sewer conduit shall conform to the following requirement: Reinforced concrete pipe, ASTM C-76, "B" or "C" wall, 8 foot lengths.

All storm sewers shall have premium joints.

Unless otherwise noted on plans, all storm sewers shall be:

PVC ASTM 3034, SDR 35 or Polyethylene ADSN-12, or approved equal

Rear yard storm sewers maybe PVC smooth interior and corrugated exterior pipe in conformance with AASHTO M294 Type S (12"-30" diameter) and AASHTO M252, Type S (4"-10" diameter) or ASTM F667-97 (8"-24" diameter).

The end of all sewer stubs shall be bulkheaded, the cost of which shall be included in the unit price bid for storm sewers.

STORM WYE BRANCHES, RISERS AND CONNECTIONS (6" DIAMETER):

The material for all wye branches, risers, and connections shall conform to the following requirements:

1. Polyvinyl chloride (PVC) ASTM D-3034 (SDR-35) with gaskets conforming to ASTM F 477 and joints per ASTM D-3212 appropriate wye branches, boots or saddles shall be installed in cored holes in the storm sewer conduit.

The end of each connection shall be marked with a 2" x 2

CONCRETE MANHOLES:

Concrete Base: Precast or cast-in-place, at contractor's option. Use concrete which will attain a 28 day compression strength of not less than 3000 PSI.

Precast Concrete Manholes: ANSI/ASTM C-478, sized as indicated.

Joints between manhole sections shall be provided with "O"-ring type neopreme rubber gaskets conforming to A.S.T.M. specification C-443. Sanitary sewer pipe passing through or connecting into the manhole shall be provided with a flexible watertight gasket and stainless steel band to allow for differential in settling between the manhole itself and the sewer pipe, to conform to A.S.T.M. spec. C-923.

MASONRY MATERIAL:

Concrete Masonry Units: ANSI/ASTM C-139

Manhole Brick: ANSI/ASTM C-32, Grade MS

Sewer Brick: ANSI/ASTM C-32, Grade SS

Masonry Mortar: ANSI/ASTM C-270, Type M

For minor amounts of mortar, packaged materials complying with ANSI/ASTM C-387, Type M, will be acceptable.

METAL ACCESSORIES:

Manholes Frames and Covers: Gray cast iron, ANSI/ASTM A-48, Class 30 B

Comply with requirements of FS RR-F-621 for type and style indicated.

Furnish covers with cast-in legend "storm" or "sanitary" on roadway face as required.

Manhole Steps: Gray cast iron, ANSI/ASTM A-48, Class 30 B, integrally cast into manhole side walls, unless otherwise indicated.

Polypropylene manhole steps will be permitted.

Catch Basin Frames and Gratings: Gray cast iron, ANSI/ASTM A-48, Class 30 B.

Comply with requirements of FS RR-F-621, for type and style required.

PART III: EXECUTION

INSTALLATION OF CONDUIT:

General: Install conduit in accordance with governing authorities having jurisdiction, except where more stringent requirements are indicated.

Inspect conduit before installation to detect apparent defects. Mark defective materials with white paint and promptly remove from site.

Lay conduit beginning at low point of a system, true to grades and alignment indicated with broken continuity of invert.

Place bell ends of clay conduit or groove end of concrete conduit facing upstream.

Install gaskets in accordance with manufacturer's recommendations for use of lubricants, cements and other special installation requirements.

Vitrified Clay Pipe: Install in accordance with applicable provisions of ASTM C-12, recommended practice for installing clay sewer pipe, unless otherwise indicated.

Concrete Pipe: Install in accordance with applicable provision of American Concrete Pipe Association "Concrete Pipe Field Manual", unless otherwise indicated.

Place circular concrete pipe with elliptical reinforcing so that reference lines indicating top of pipe are not more than 5 degrees from vertical plane through longitudinal axis of pipe.

Cleaning Conduit: Clear interior of conduit of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed.

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

Place plugs in ends of uncompleted conduit at end of each day or whenever work stops.

Flush lines between manholes if required to remove collected debris.

Interior Inspection: Inspect conduit to determine whether line displacement or other damage has occurred.

Make inspections after lines between manholes or manhole locations have been installed and approximately two feet of backfill is in place and at completion of project.

If inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, correct such defects to satisfaction of engineer.

UNDERGROUND STRUCTURES:

Masonry Construction Manholes: At contractor's option, use either sewer brick or concrete masonry units to construct masonry manholes. Mix mortar with only enough water for workability, retempering of mortar will not be permitted. Keep mortar mixing and conveying equipment clean. Do not deposit mortar upon, or permit contact with the ground.

Lay masonry in mortar so as to form full bed with ends and side joints, not more than 5/8" wide. Protect fresh masonry from freezing and from too rapid drying.

Apply a 1/2" thick mortar coating on both interior and exterior wall surfaces.

Where manholes occur in pavements, set tops of frames and cover flush with finish surface. Elsewhere, set tops 3" above finish surface unless otherwise indicated.

Use an epoxy bonding compound where manhole steps are mortared into masonry walls.

Precast Concrete Manholes: Place precast concrete sections as shown on drawings. Where manholes occur in pavements, set tops of frames and covers flush with finish surface. Elsewhere, set tops 2" above finish surface, unless otherwise indicated.

Use epoxy bonding compound where manhole steps are mortared into manhole walls.

Provide rubber joint gasket complying with ASTM C-443.

Catch Basins: Construct catch basins to the sizes and shapes indicated. Precast alternates will be allowed subject to engineer approval.

Use concrete which will attain a 28 day compressive strength of not less than 3000 PSI.

Set cast iron frames and gratings to elevations indicated.

BACKFILLING:

General: Conduct backfill operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed.

For conduit under paved areas backfill shall be done with granular material and brought to the surface of the subgrade of the pavement.

TESTING:

Color Photography or VCR Television Inspection and Testing of Storm Sewers: All inspection and testing shall be done by an experienced and qualified firm engaged in this type of work, as approved by the City of Massillon. Written reports for all inspection and testing shall be submitted to the owner for approval. All storm sewers television inspection shall be in accordance with the Massillon specifications. If the installation fails to meet the requirements of these tests and inspections, the contractor shall repair or replace all defects and re-test the installation.

For 48" and larger pipe, visual inspection may be performed in lieu of color photography or VCR television inspection.

Color Photography or VCR Television Inspection and Testing of Sanitary Sewers: All inspection and testing shall be done by an experienced and qualified firm engaged in this type of work, as approved by the City of Massillon. Written reports for all inspection and testing shall be submitted to the owner and the City of Massillon for approval. All sanitary sewers must be flushed and pass the latest proposed low pressure air test requirements and deflection test requirements of the Ohio Environmental Protection Agency and the City of Massillon. The maximum deflection allowed is 5%. The maximum leakage allowed is 100 gallons per inch of pipe diameter per mile of sewer per day. All sanitary sewers must also have a color photograph or VCR television inspection in accordance with the City of Massillon specifications. All final testing and inspections shall be performed after completion of pavement construction and seeding of disturbed areas, but prior to the issuance of building permits. If the installation fails to meet the requirements of these tests and inspections, the contractor shall repair all defects and retest the installation.

Deflection Test:

a. Deflection test shall be performed on all flexible pipe. The test shall be conducted after the final backfill has been in place at least 30 days to permit stabilization of the soil-pipe system.

b. No pipe shall exceed a deflection of 5 percent. If deflection exceeds 5 percent, replacement or correction shall be accomplished in accordance with requirements in the approved specifications.

c. The rigid ball or mandrel used for the deflection test shall have a diameter not less than 95 percent of the base inside diameter or average inside diameter of the pipe depending on which is specified in the ASTM Specification, including the appendix, to which the pipe is manufactured. The test shall be performed without mechanical pulling devices.

Hydrostatic Test:

The leakage exfiltration or infiltration shall not exceed 100 gallons per inch of pipe diameter per mile per day (0.02 m3/mm of pipe dia./km/day) for any section of the system. An exfiltration or infiltration test shall be performed with a minimum positive head of 2 feet (600 mm).

Air Test:

The air test shall, as a minimum, conform to the test procedure described in ASTM C-828 for clay pipe, ASTM C-924 for concrete pipe, ASTM F-1417 for plastic pipe, and for other materials test procedures approved by the regulatory agency.

Manhole Test:

All manholes to be vacuum tested as per ASTM-C-1244. All testing shall be witnessed by a Municipal sanitary official.

SECTION 5 - PORTLAND CEMENT CONCRETE PAVING

PART I: GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of contract, including general and supplementary conditions and specification sections, apply to work specified in this section.

DESCRIPTION OF WORK:

Extent of Portland cement concrete paving is shown on drawings, including curbs and gutters.

Prepared subbase is specified in Section 3, "Earthwork".

QUALITY ASSURANCE:

"State Specifications" as used herein refer to the State of Ohio Department of Highways Construction and Material Specifications, 2002 edition, referred to as ODOT.

SUBMITTALS:

Furnish samples, manufacturer's product data, test reports, and materials certifications as required in referenced sections for concrete and joint fillers and sealers.

JOB CONDITIONS:

Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

Utilize flagmen, barricades, warning signs and warning lights as required.

PART II: PRODUCTS

MATERIALS:

Forms: Steel of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

Use flexible spring steel forms to form radius bends as required.

Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.

Concrete materials shall conform to "State Specifications" Item 451, Modified Class "C" unless otherwise specified.

Portland cement shall be ASTM C-175-67, 1A which will produce 6% plus or minus 1% of entrained air.

Aggregate shall meet the requirements of "State Specifications", Item 703.02. Coarse aggregate shall be crushed limestone only.

Water shall be clear and free from injurious amounts of oils, acid, alkalis, organic materials or other deleterious substance, for human consumption.

Membrane curing and sealing compound shall conform to ASTM C-309.

Reinforcing steel shall conform to ASTM A-615, Grade 60.

Poured joint filler shall be of non-extruding bituminous type meeting ASTM specifications D 1751-65 and conform to AASHTO specifications M-173.

PROPORTIONING AND MIXING CONCRETE:

All concrete shall be proportioned and mixed in accordance with the applicable requirements of "State Specifications", Item 499.

All concrete shall be tested for compliance with this specification.

PART III: EXECUTION

SURFACE PREPARATION:

Remove loose material from compacted subbase surface immediately before placing concrete.

Proof roll prepared surface to check for unstable areas and need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

FORM CONSTRUCTION:

Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

Check completed form work for grade and alignment to following tolerances:

- * Top of forms not more than 1/8" in 10'
- * Vertical face on longitudinal axis not more than 1/4" in 10'

Clean forms after each use and coat with form release agent as often as required to ensure separation from concrete without damage.

REINFORCEMENT:

Locate and place reinforcement as detailed on the drawings.

CONCRETE PLACEMENT:

Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

Bedding: To be ODOT 307CE base compacted to the depth indicated on the typical sections.

Place concrete using methods which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocation of reinforcing, dowels, and joint devices.

Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2 hour, place a construction joint.

While being deposited the concrete shall be vigorously manipulated with spades or other suitable tools to prevent the formation of voids, or honey combed sections. Special attention shall be given to the compacting of the concrete against forms, curbs, castings and joints.

In the event of an interruption in the delivery of concrete or any mechanical malfunction a transverse construction joint shall be formed as specified. Any concrete which has been delivered in quantities in excess of that needed to form this intermediate joint shall not be used.

Unless otherwise specified, concrete when deposited shall have a temperature of not less than 50°F, nor more than 90°F. In freezing weather, suitable means shall be provided for maintaining the concrete at a temperature of 45°F for a period of not less than seven (7) days. Construction must stop if the temperature falls to 38°F. No frozen materials shall be used in the concrete nor shall concrete be laid on frozen ground. Any concrete which may be damaged by frost action shall be replaced by the contractor at his own expense.

Weakened-Plane (Contraction) Joints: Provide weakened-plane (contraction) joints, sectioning concrete into areas as shown on drawings. Construct weakened-plane joints for a depth equal to at least 1/4 concrete thickness, as follows:

Tooled Joints: Form weakened-plane joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer.

Construction Joints: Place construction joints at end of placements and at locations where placement operations are stopped for a period of more than 1/2 hour, except where such placements terminate at expansion joints. Construction joints as shown.

Expansion Joints: Provide pre molded joint filler for expansion joints abutting catch basins, manholes, inlets, structures, walks and other fixed objects unless otherwise indicated.

Extend joint fillers full width of joint, and not less than 1/2" or more than 1" below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface.

Furnish joint fillers in one-piece lengths for full width being placed whenever possible. Where more than one length is required, lace or clip joint filler sections together.

Protect top edge of joint filler during concrete placement with a metal cap or other temporary material. Remove protection after concrete has been placed on both sides of joint.

CONCRETE FINISHING:

After striking-off and consolidating concrete, smooth surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.

After floating, test surface for trueness with 10' straight edge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.

Curbs and Gutters: Automatic machine may be used for curb and gutter placement at contractor's option. If machine placement is to be used, submit revised mix design and laboratory test results which meet or exceed minimums specified. Machine placement must produce curbs and gutters to 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.

JOINTS:

General: Construct expansion, weakened-plane (contraction), and construction joints true-to-line with face perpendicular to surface of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.

When joining existing structures, place transverse joints to align with previously placed joints, unless otherwise indicated.

Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool, and round to 1/2" radius, unless otherwise indicated. Eliminate tool marks on concrete surface.

After completion of floating and troweling when excess moisture or surface sheen has disappeared complete surface finishing, as follows.

Broom finish, by drawing a fine-hair broom across concrete surface, perpendicular to line of traffic. Repeat operation if required to provide a fine line texture acceptable to engineer.

Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and joint-up any minor honeycombed areas. Remove and replace areas or sections with major defects, as directed by engineer.

CURING:

Curing material shall be applied at the rate of one gallon per 300 square feet and in strict accordance with the manufacturer's directions. Do not use liquid membrane curing compound where anti-spalling treatment is to be applied.

REPAIRS AND PROTECTIONS:

Repair or replace broken or defective concrete, as directed by engineer.

Drill test cores where directed by engineer when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy resin grout.

Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur. Sweep concrete pavement and walks free of stains, discoloration, dirt and other foreign material just prior to final inspection.

UTILITY MARKINGS:

Paving contractor shall emboss utility locations on curbs after completion of pavement.

SECTION 6 - ASPHALT CONCRETE PAVING

PART I: GENERAL

RELATED DOCUMENTS

Drawings and general provisions of contract, including general and supplementary conditions and specifications sections, apply to work of this section.

DESCRIPTION OF WORK

Extent of asphalt concrete paving work is shown on drawings.

Prepared aggregate subbase is specified in Section 3, "Earthwork".

SUBMITTALS

Material Certificates: Provide copies of materials certificates signed by material producer and contractor, certifying that each material item complies with, or exceeds, specified requirements. No recycled asphalt is permitted on this project.

JOB CONDITIONS

Weather Limitations: Apply prime and tack coats when ambient temperature is above 50°F (10°C), and when temperature has not been below 35°F (1°C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

Construct asphalt concrete surface course when atmospheric temperature is above 40°F (4°C) and when base is dry. Base course may be placed when air temperature is above 30°F (-1°C) and rising.

Grade Control: Establish and maintain required lines and elevations.

QUALITY ASSURANCES

"State Specifications" as used herein refer to the State of Ohio Department of Highways Construction and Material Specifications, 2002 editions, referenced to as ODOT.

PART II: PRODUCTS

MATERIALS

General: Use locally available materials and gradations which exhibit a satisfactory record of previous installations. Pavement materials shall meet the requirements of the following ODOT items:

Aggregate base course: ODOT Item 307CE

Bituminous aggregate base: ODOT Item 301

Asphalt Concrete Surface course: ODOT Item 448 Surface Medium

Striping paint shall be white, chlorinated rubber base traffic lane marking paint, factory mixed, quick-drying and non-bleeding, if required.

PART III: EXECUTION

SUBGRADE INSPECTION

Paving contractor must examine the areas and conditions under which pavement is to be installed. Notify the engineer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the engineer. Coordinate inspection with the engineer.

SURFACE PREPARATION

Remove loose material from compacted subbase surface.

Proof roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.

Notify engineer of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive base course aggregate.

REGULAR DUTY PAVEMENT COURSES

Aggregate base course for pavement shall be 6" in thickness after compaction, as indicated on the drawings, and placed on the prepared subbase in accordance with state specifications Item 307CE "Aggregate Base". After completion of base course, it shall be checked for irregularities in grade at approximately 25 foot intervals, and all high spots or depressions shall be corrected before bituminous intermediate course is installed. The base course shall be place in two 3" thick layers.

Bituminous aggregate base course for pavement shall be 2" in thickness after compaction, as indicated on the drawings, and placed on the prepared subbase in accordance with state specifications Item 301 "Bituminous Aggregate Base". The base course shall be placed in one 2" thick layer.

Surface course shall be 2" thickness after compaction, as indicated on the drawings, placed on the prepared aggregate base course course in accordance with state specifications Item 448 Surface Spreading and finishing of open areas shall be done with a barber green spreader, or approved equal to secure accurate surface grades which will conform in all respects to those indicated on the grading plan.

There shall be an Item 407, Tack Coat, applied prior to Item 448 surface and intermediate courses unless otherwise directed by the engineer.

HRAVY DUTY PAVEMENT COURSES

Aggregate base course for pavement shall be 6" in thickness after compaction, as indicated on the drawings, and placed on the prepared subbase in accordance with state specifications Item 307CE "Aggregate Base". After completion of base course, it shall be checked for irregularities in grade at approximately 25 foot intervals, and all high spots or depressions shall be corrected before bituminous intermediate course is installed. The base course shall be place in two 3" thick layers.

Bituminous aggregate base course for pavement shall be 4" in thickness after compaction, as indicated on the drawings, and placed on the prepared subbase in accordance with state specifications Item 301 "Bituminous Aggregate Base". The base course shall be placed in one 4" thick layer.

Surface course shall be 2" thickness after compaction, as indicated on the drawings, placed on the prepared aggregate base course course in accordance with state specification Item 448 Surface. Spreading and finishing of open areas shall be done with a barber green spreader, or approved equal to secure accurate surface grades which will conform in all respects to those indicated on the grading plan.

There shall be an Item 407, Tack Coat, applied prior to Item 448 surface and intermediate courses unless otherwise directed by the engineer.

FIELD QUALITY CONTROL

Test the in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by the engineer.

In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness.

Subbase and base courses: 1/4" ±
Leveling and wearing courses: 3/16" ±

Test finished surface of each asphalt concrete course for smoothness, using 10'-0" straightedge applied parallel with and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the above tolerances for smoothness.

Check surfaced areas at intervals as directed by the engineer.

MISCELLANEOUS NOTES

Contractor to verify condition of existing storm sewer pipe tying into existing sewer. The engineer shall inspect such condition and verify adequacy. Contractor shall follow engineer's request to use or replace such pipe to new catch basins.

CITY OF MASSILLON GENERAL NOTES:

1. CONTRACTOR SHALL CHECK DETAIL DRAWINGS FOR MINIMUM GRADE AND BACKFILL REQUIREMENTS.

2. ALL COMBINATION CONCRETE CURB AND GUTTER TO BE MASSILLON STANDARD EXCEPT WHERE VARIATIONS ARE TO BE EXTENDED OR MET. SE SPECIFICATION BOOK AND PLANS.

3. EXCAVATION FOR CONCRETE CURB AND GUTTER SHALL BE INCLUDED IN THE COST PER LINEAL FOOT OF SAID CURB AND GUTTER.

4. ALL CATCH BASINS AND MANHOLES TO BE ADJUSTED TO GRADE WHERE NECESSARY.

5. ALL CONCRETE TO BE 1:2- 4-6 BAG MIX. 28 DAY - 3000 PSI COMPRESSIVE STRENGTH; MAX. SLUMP TO BE 4".

6. ALL MATERIALS USED WILL BE NEW - NO SALVAGED MATERIALS WILL BE ACCEPTED, EXCEPT CASINGS, AS APPROVED.

7. IF CONTRACTOR EXCAVATES DEEPER THAN NECESSARY FOR CURB AND GUTTER, CONTRACTOR WILL FURNISH O.D.O.T. 304 AGGREGATE AND TAMP BEFORE CURB AND GUTTER IS CONSTRUCTED.

8. IF SUBGRADE IS UNSUITABLE, CONTRACTOR WILL EXCAVATE AND REPLACE SUCH MATERIAL WITH CRUSHER RUN GRAVEL. AT THE DISCRETION OF THE INSPECTOR OR CITY ENGINEER, THIS FILL TO BE PLACED IN 6" LAYERS OR LESS. SAID FILL TO BE COMPACTED TO 95% LABORATORY DRY WEIGHT BEFORE ADDITIONAL LAYERS ARE ADDED. CONTRACTOR WILL BE PAID FOR EXTRA GRAVEL AND EXCAVATION. THIS COMPACTION TO BE DONE BEFORE FORMS ARE PLACED.

9. CONTRACTOR TO BACKFILL CURB IMMEDIATELY AFTER CURB HAS BEEN IN PLACE FOR 24 HOURS.

10. ALL STORM SEWER PIPES WITHIN PAVEMENT LIMITS SHALL BE REINFORCED CONCRETE PIPE (O.D.O.T. 706.02) AND SHALL BE TYPE "B" CONDUIT IN ACCORDANCE WITH O.D.O.T. 603 WITH CLASS "B" BEDDING AND GRANULAR BACKFILL. ALL STORM SEWER OUTSIDE PAVEMENT LIMITS SHALL BE SMOOTH LINED CORRUGATED POLYETHYLENE (O.D.O.T. 707.33) OR REINFORCED CONCRETE PIPE (O.D.O.T. 706.02) AND SHALL BE TYPE "C" CONDUIT IN ACCORDANCE WITH O.D.O.T. 603 WITH CLASS "C" BEDDING AND SUITABLE SOIL BACKFILL.

11. DOWNSPOUT HEADERS SHALL BE 6" PVC (SDR 21) PIPE (UNLESS OTHERWISE NOTED ON THE PLANS) AND SHALL BE DIRECTLY CONNECTED TO THE STORM SEWER WITH APPROVED TEE OR SADDLE CONNECTIONS. HEADERS SHALL EXTEND 12" INTO THE LOTS OR BEYOND THE FURTHEST UTILITY, WHICHEVER IS GREATER.

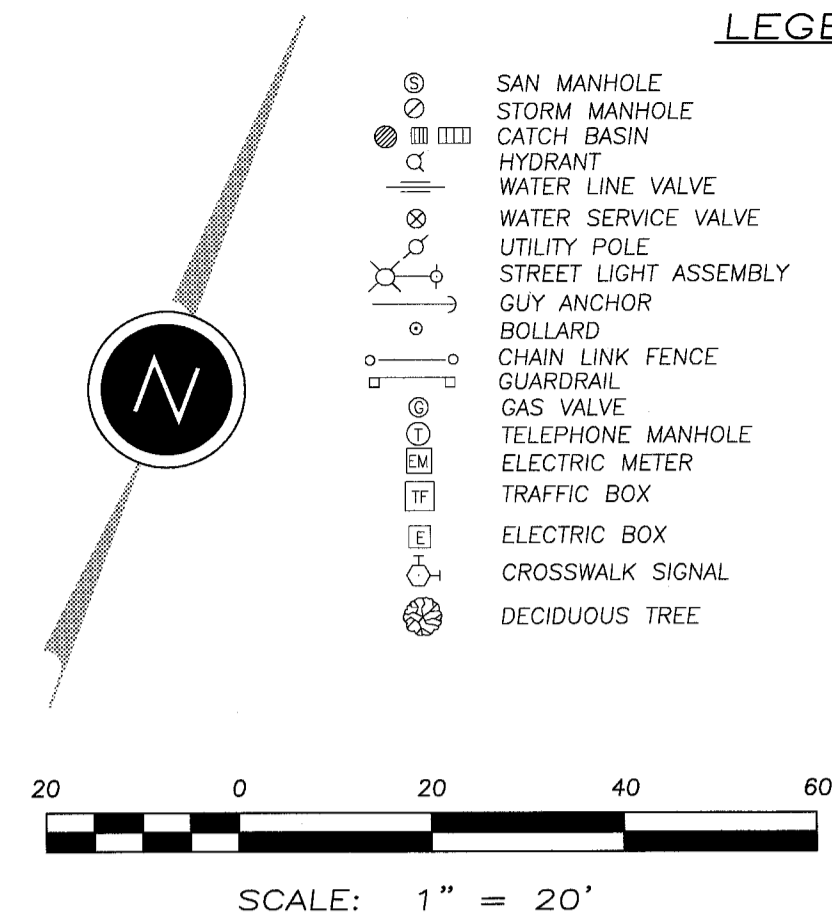
12. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES BEFORE ANY WORK IS BEGUN. THE CITY OF MASSILLON IS NOT RESPONSIBLE FOR ANY LOST TIME DUE TO UTILITY RELOCATION.

13. MANHOLES AND CATCH BASINS

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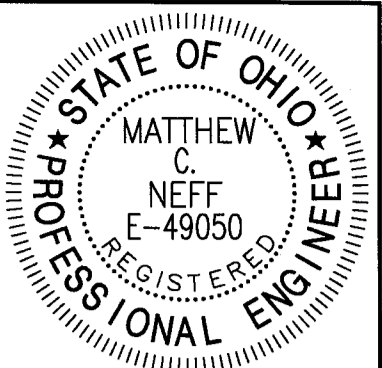
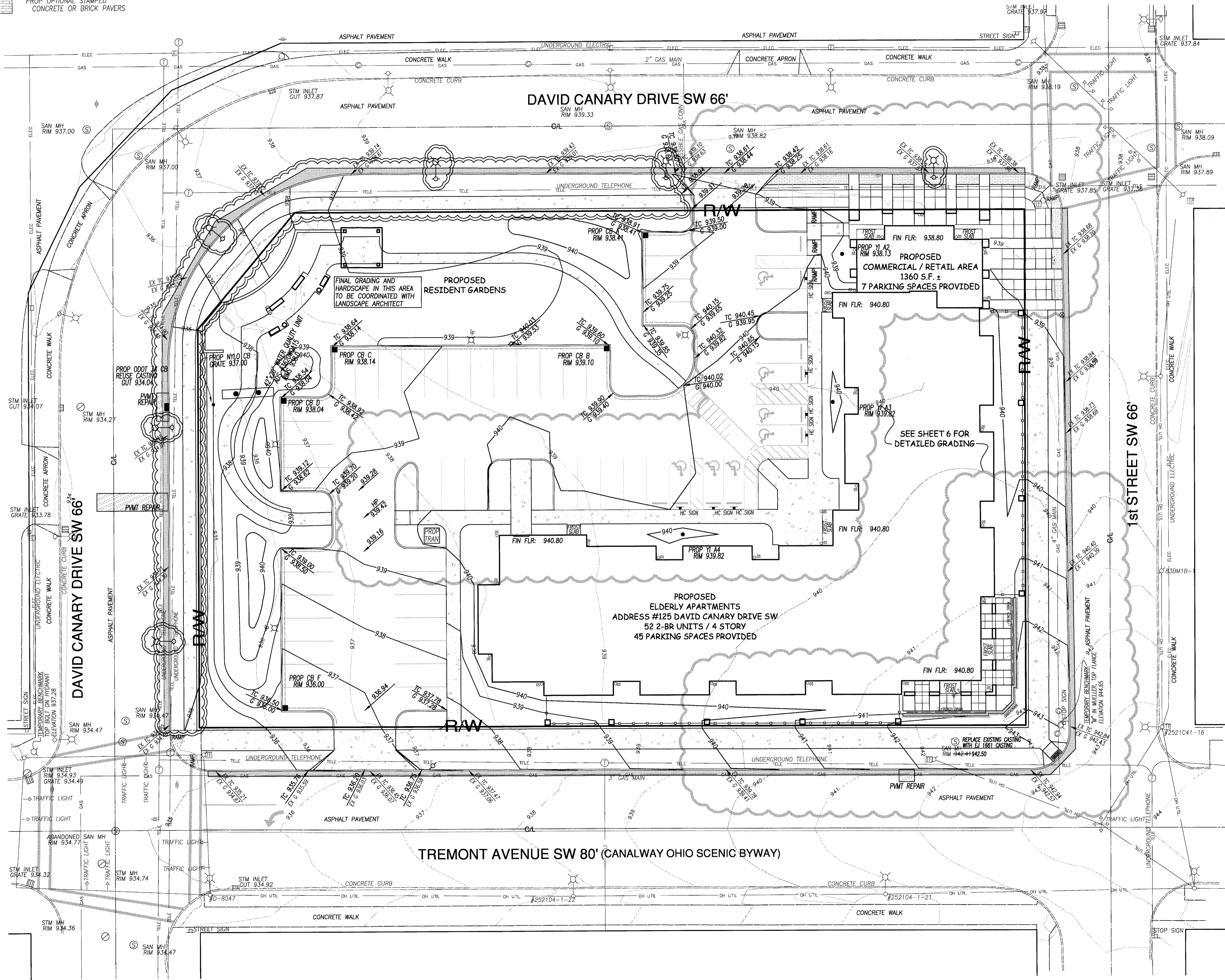
2 WORKING DAYS
BEFORE YOU DIG
CALL TOLL FREE 1-800-362-2764
OHIO UTILITIES PROTECTION SERVICE

UTILITY STATEMENT
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



PROJECT BENCHMARK
USGS BRASS DISK ON CONCRETE MONUMENT
STAMPED MASSILLON 1934
AT INTERSECTION OF LINCOLN WAY AND 1st STREET SE
NAVD83 ELEVATION 947.12

SIGHT LIGHTING NOTE
SITE LIGHT POLES ARE TO BE COORDINATED WITH SITE ELECTRICAL LIGHTING PLANS.
SITE LIGHT POLES ARE TO MATCH SURROUNDING AREA DECORATIVE LIGHT POLES AND SUBJECT TO APPROVAL BY CITY ENGINEER.



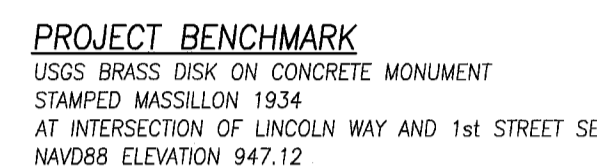
IMPROVEMENT PLANS FOR:
MASSILLON SENIOR
OVERALL GRADING PLAN

Revisions Number	Date	Description
1	10/15/09	CHFA 50% Submittal
2	12/23/09	City Comments Addressed
3	01/27/10	City Comments Addressed
4	03/05/10	City Comments Addressed

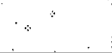
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tel: 216.663.8820 • fax: 216.663.8821
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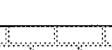
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Original Submission Oct 16, 2009	Last Plot Date Mar 05, 2010
Drawn By lah	Checked By
Project Number 7426	Field Crew FS & BH
Sheet 5	11



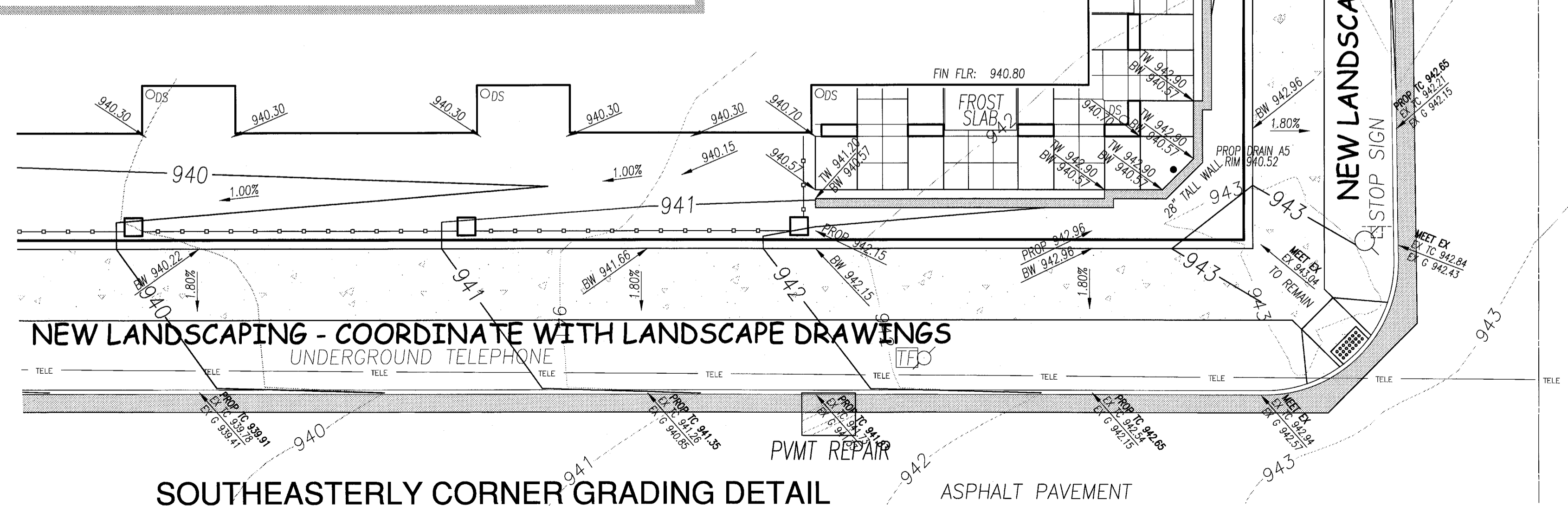
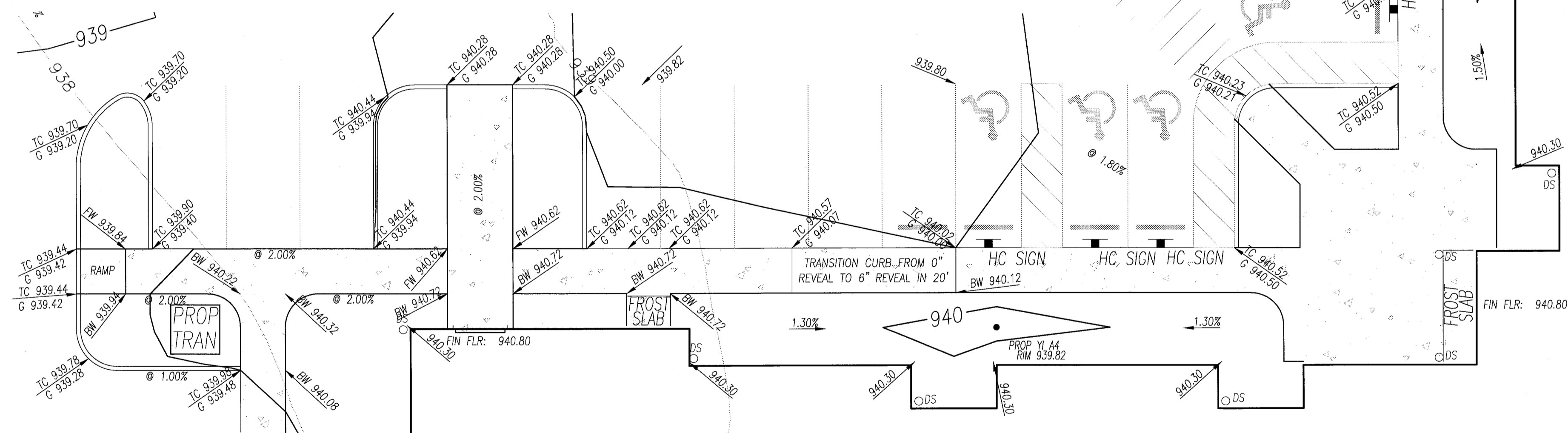
BW = BACK OF WALK
FW = FACE OF WALK
TC = TOP OF CURB
G = GUTTER
T/S = TOP OF STEP
B/S = BOTTOM OF STEP
T/W = TOP OF RETAINING WALL
B/W = BOTTOM OF RETAINING WALL



PROP CONCRETE



PROP OPTIONAL STAMPED
CONCRETE OR BRICK PAVERS



SOUTHEASTERLY CORNER GRADING DETAIL

ASPHALT PAVEMENT

IMPROVEMENT PLANS FOR:
MASSILLON SENIOR
DETAILED GRADING PLAN

Reviews		
Number	Date	Description
1	10.16.09	OHFA 50% Submittal
2	12.23.09	City Comments Addressed
3	01.27.10	City Comments Addressed
4	03.05.10	City Comments Addressed

PLANNERS | ENGINEERS | SURVEYORS

mNEFF design group

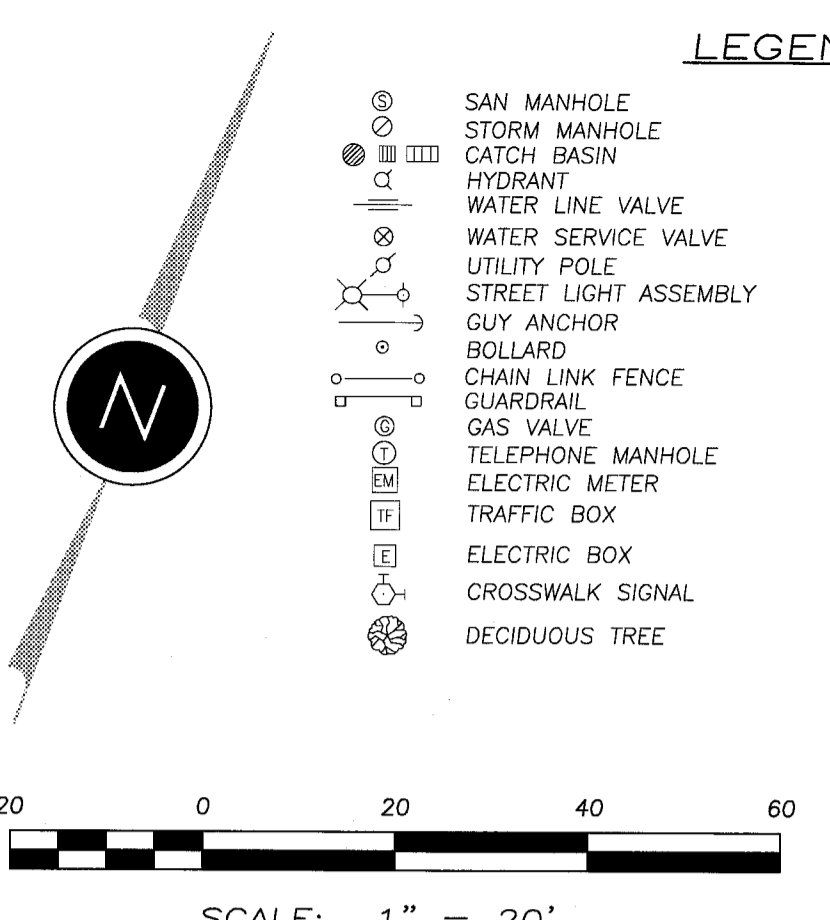
DESIGNING LAND FOR YOUR WORLD

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tel: 216.663.8620 • fax: 216.663.8621

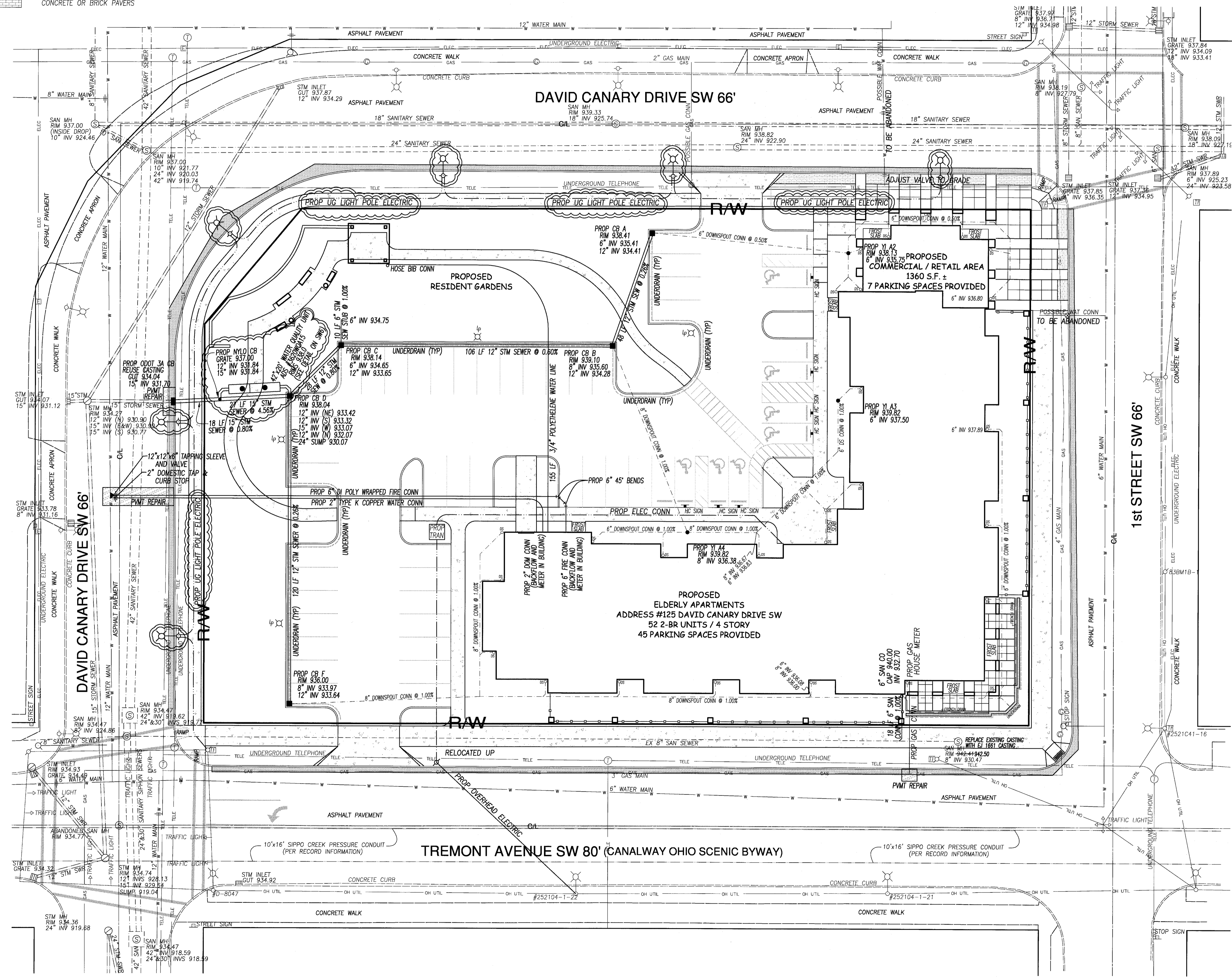


Horizontal Scale 1" = 10'	Vertical Scale None
Original Submission Oct 16, 2009	Last Plot Date Mar 05, 2011
Drawn By lah	Checked By
Project Number 7426	Field Crew FS & BH
Sheet 6	

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- Legend items:
- San Manhole
 - Storm Manhole
 - Catch Basin
 - Hydrant
 - Water Line Valve
 - Water Service Valve
 - Utility Pole
 - Street Light Assembly
 - Guy Anchor
 - Bollard
 - Chain Link Fence
 - Guardrail
 - Gas Valve
 - Telephone Manhole
 - Electric Meter
 - Traffic Box
 - Electric Box
 - Crosswalk Signal
 - Deciduous Tree
- Legend items:
- Back of Walk
 - Face of Walk
 - Top of Curb
 - Gutter
 - Top of Step
 - Bottom of Step
 - Top of Retaining Wall
 - Bottom of Retaining Wall
- Legend items:
- Prop Concrete
 - Prop Optional Stamped Concrete or Brick Pavers



STATE OF OHIO
REGISTERED PROFESSIONAL ENGINEER
MATTHEW C. NEFF
E-49050

IMPROVEMENT PLANS FOR:
MASSILLON SENIOR
UTILITY PLAN

Revision Number	Date	Description
1	10.16.09	CHPA 50% Submittal
2	12.23.09	City Comments Addressed
3	01.27.10	City Comments Addressed
4	03.06.10	City Comments Addressed

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14855 Broadway Avenue, Suite 100-2B • Maple Heights, Ohio 44137
tel: 216.663.8820 • fax: 216.663.8821
www.mneffdesign.com

Horizontal Scale
1" = 20'

Vertical Scale
None

Original Submission
Oct 16, 2009

Last Plot Date
Mar 05, 2010

Drawn By
lah

Checked By

Project Number
7426

Field Crew
FS & BH

Sheet
7
11

Drawing File: J:\7400-7499\7426 Massillon Elderly\7426.dwg Mar 05, 2010 - 2:11pm

LEGEND

BW = BACK OF WALK
FW = FACE OF WALK
TC = TOP OF CURB
G = GUTTER
T/S = TOP OF STEP
B/S = BOTTOM OF STEP
T/W = TOP OF RETAINING WALL
B/W = BOTTOM OF RETAINING WALL

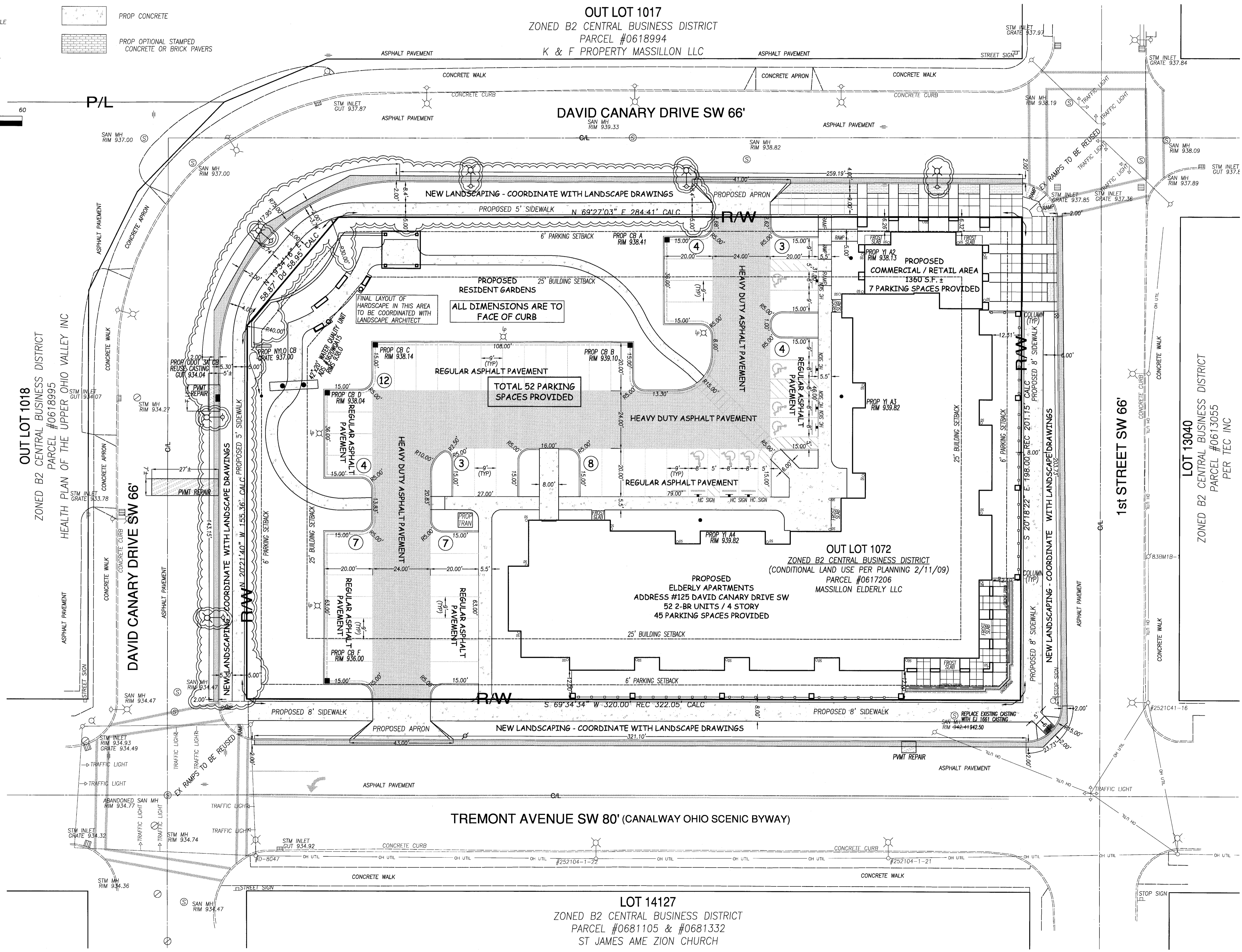
PROP CONCRETE
PROP OPTIONAL STAMPED CONCRETE OR BRICK PAVERS

SAN MANHOLE
STORM MANHOLE
CATCH BASIN
HYDRANT
WATER LINE VALVE
WATER SERVICE VALVE
UTILITY POLE
STREET LIGHT ASSEMBLY
GUY ANCHOR
BOLLARD
CHAIN LINK FENCE
GUARDRAIL
GAS VALVE
TELEPHONE MANHOLE
ELECTRIC METER
TRAFFIC BOX
ELECTRIC BOX
CROSSWALK SIGNAL
DECIDUOUS TREE

SCALE: 1" = 20'

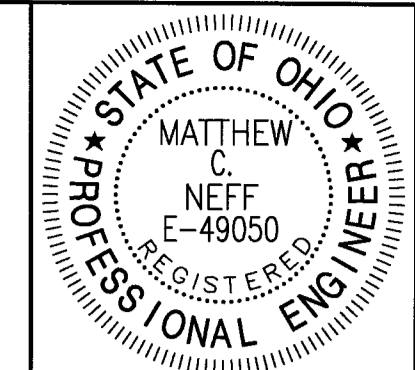
PROJECT BENCHMARK
USGS BRASS DISK ON CONCRETE MONUMENT
STAMPED MASSILLON 1934
AT INTERSECTION OF LINCOLN WAY AND 1st STREET SE
NAVD88 ELEVATION 947.12

SIGHT LIGHTING NOTE
SITE LIGHT POLES ARE TO BE COORDINATED
WITH SITE ELECTRICAL LIGHTING PLANS.
SITE LIGHT POLES ARE TO MATCH
SURROUNDING AREA DECORATIVE LIGHT POLES
AND SUBJECT TO APPROVAL BY CITY ENGINEER.



2 WORKING DAYS
BEFORE YOU DIG
CALL TOLL FREE 1-800-362-2764
OHIO UTILITIES PROTECTION SERVICE

UTILITY STATEMENT
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION
AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND
UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR
ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND
UTILITIES SHOWN ARE IN EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT
THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE
SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.



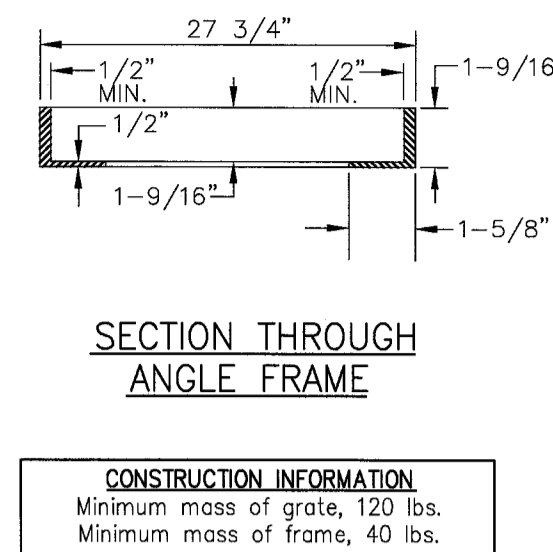
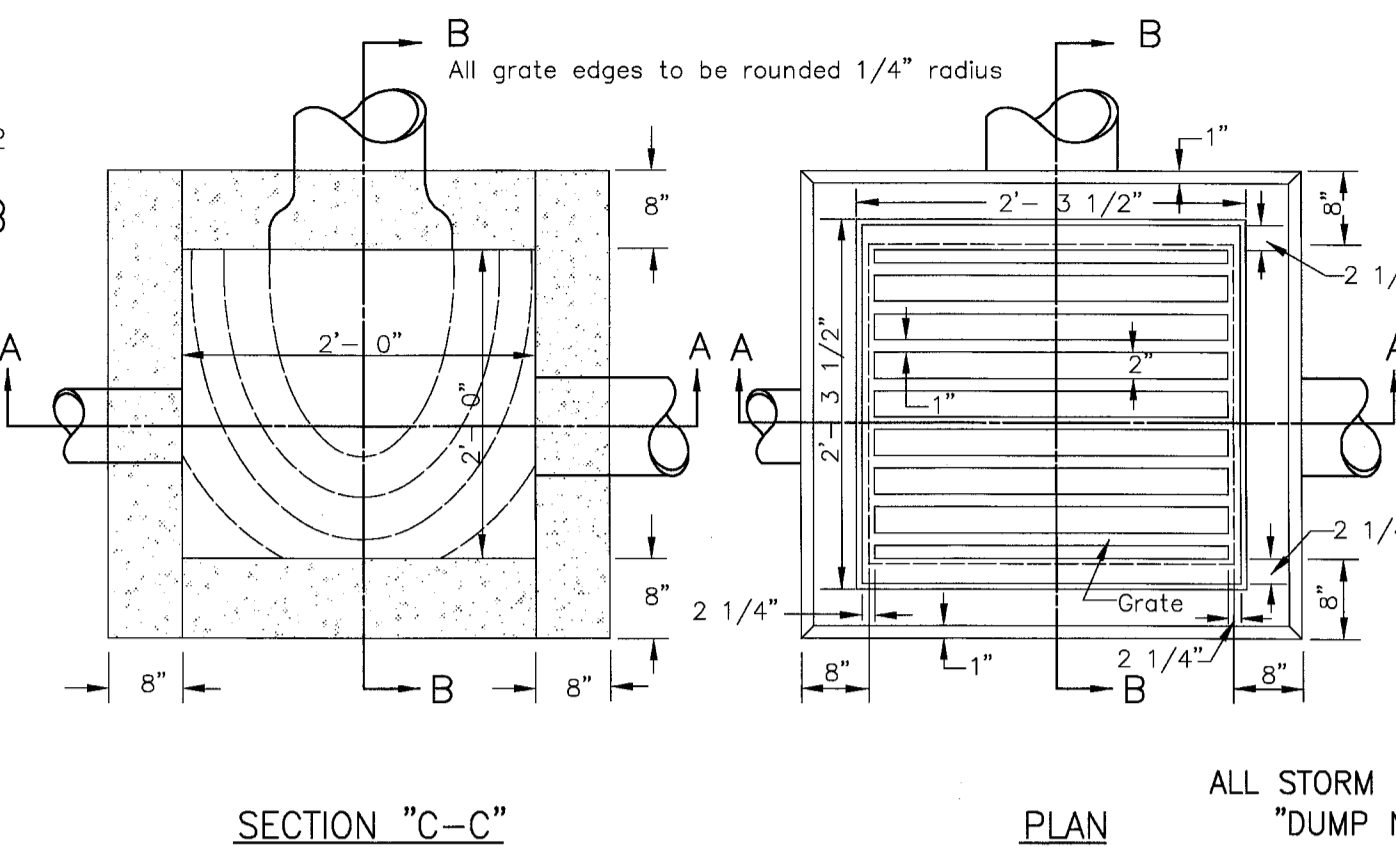
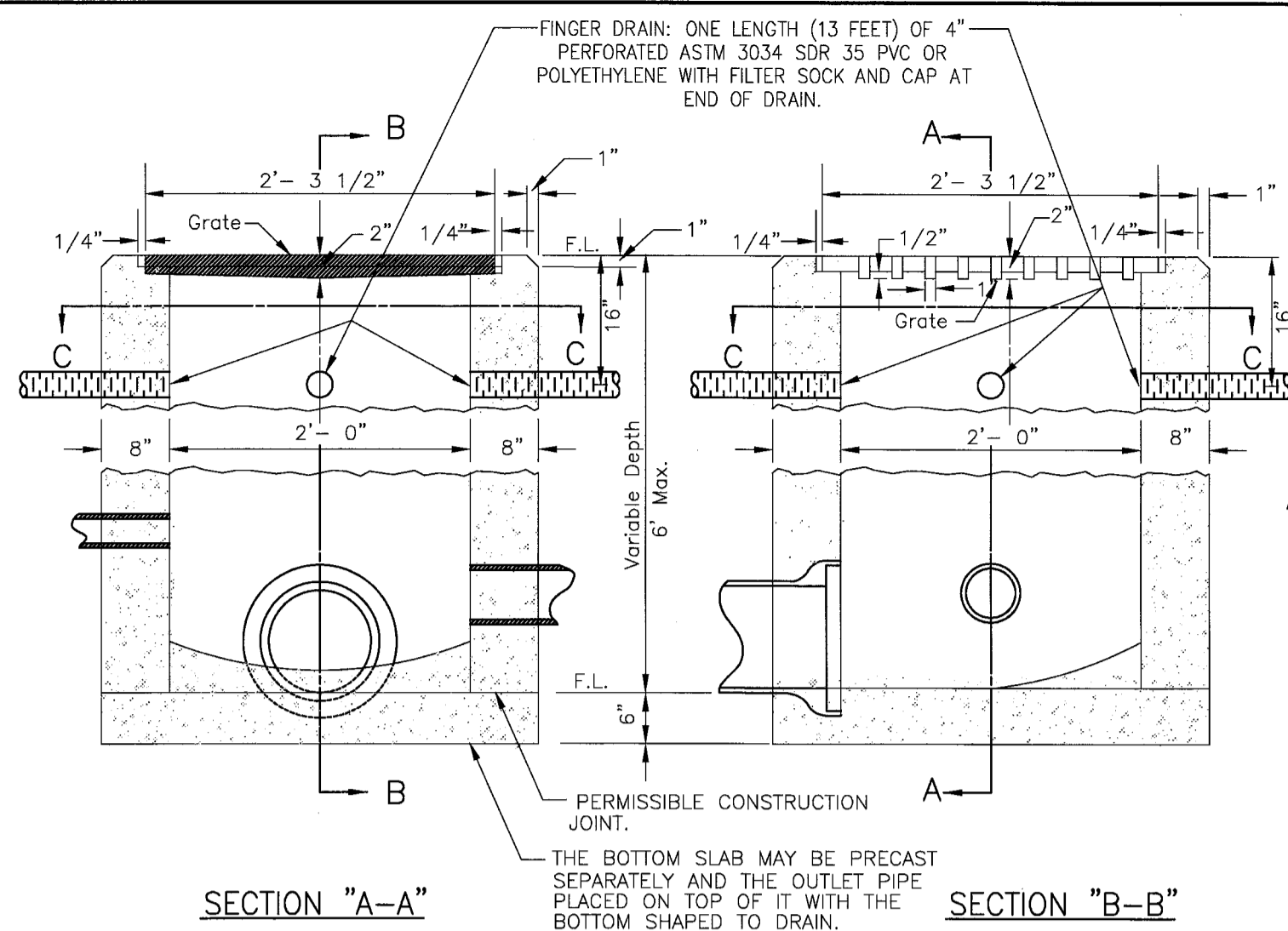
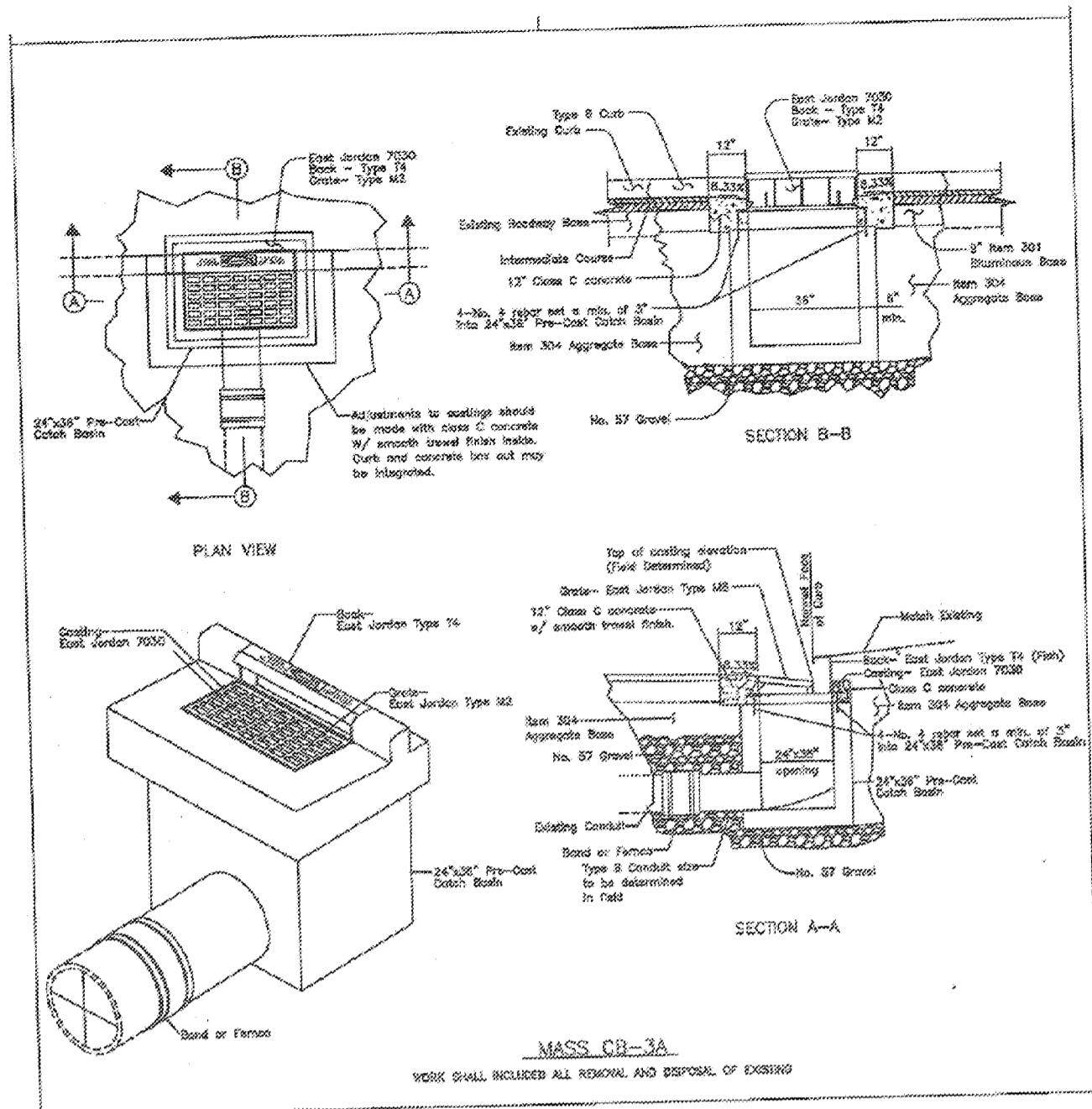
IMPROVEMENT PLANS FOR:
MASSILLON SENIOR
LAYOUT & PAVEMENT PLAN

Revisions	Number	Date	Description
	1	10.16.09	CHA 50% Submittal
	2	12.23.09	City Comments Addressed
	3	01.27.10	City Comments Addressed
	4	03.05.10	City Comments Addressed

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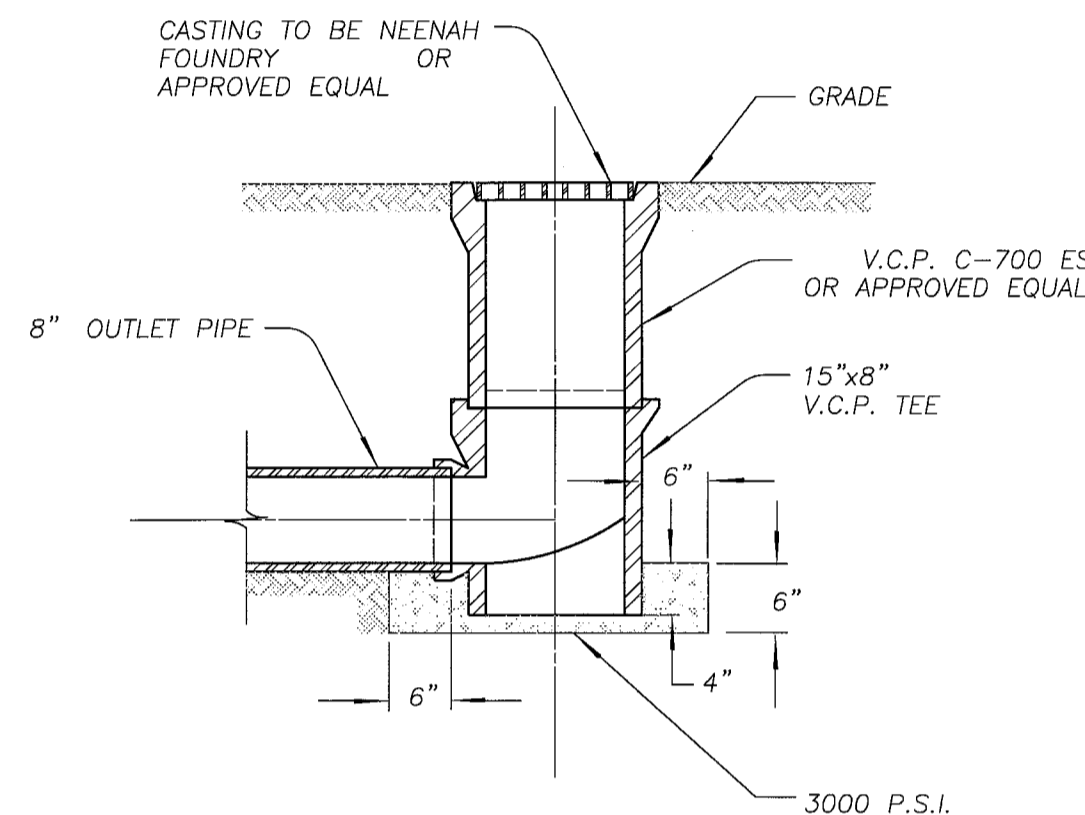
Horizontal Scale 1" = 20'	Vertical Scale None
Original Submission Oct 16, 2009	Last Plot Date Mar 05, 2010
Drawn By lah	Checked By
Project Number 7426	Field Crew FS & BH
Sheet 8	of 11



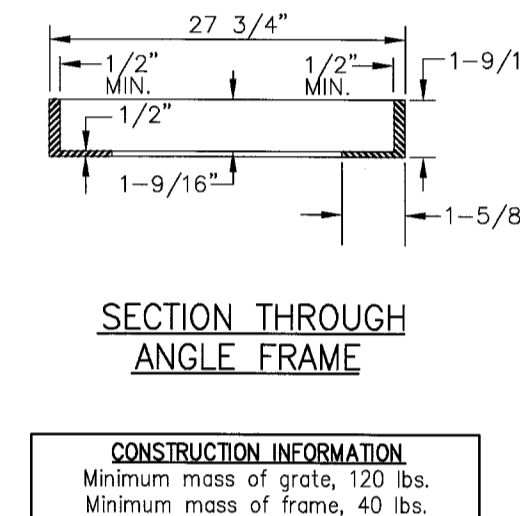
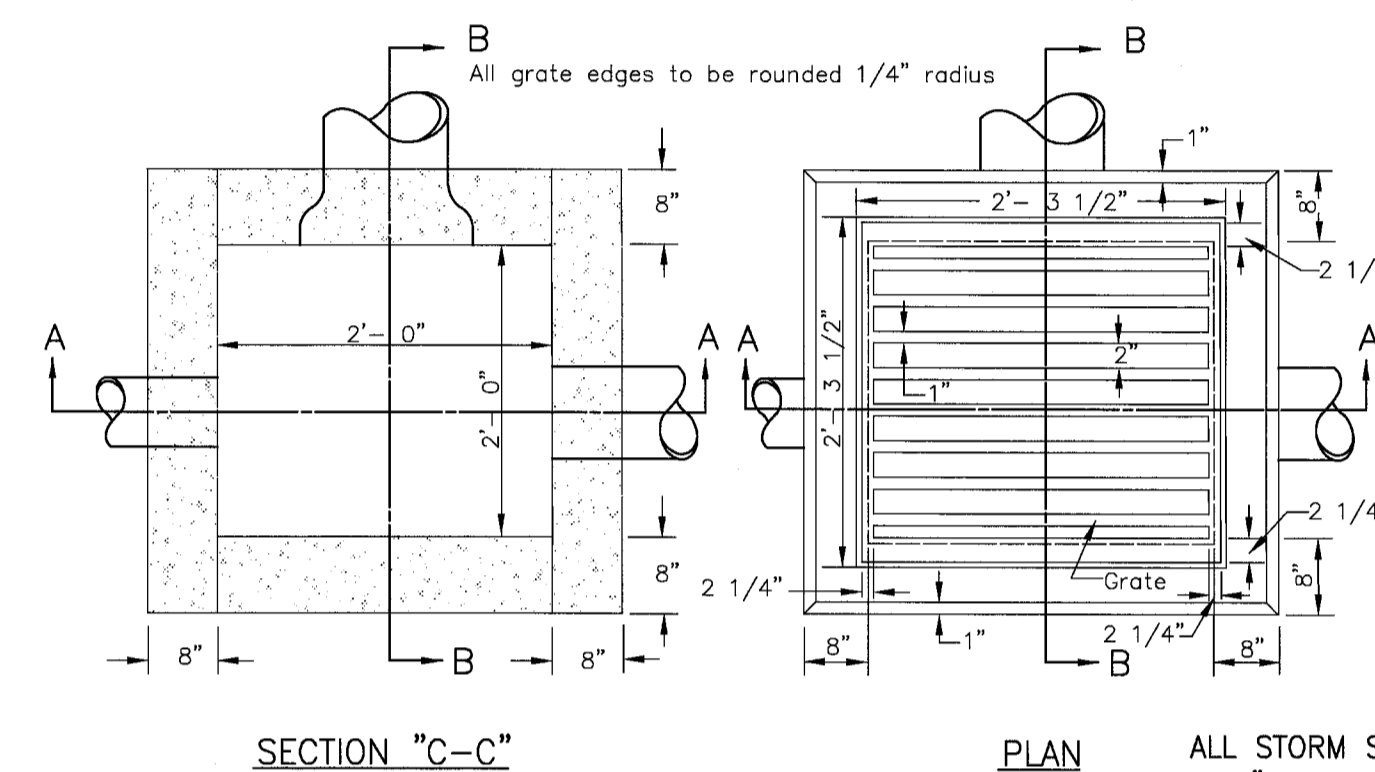
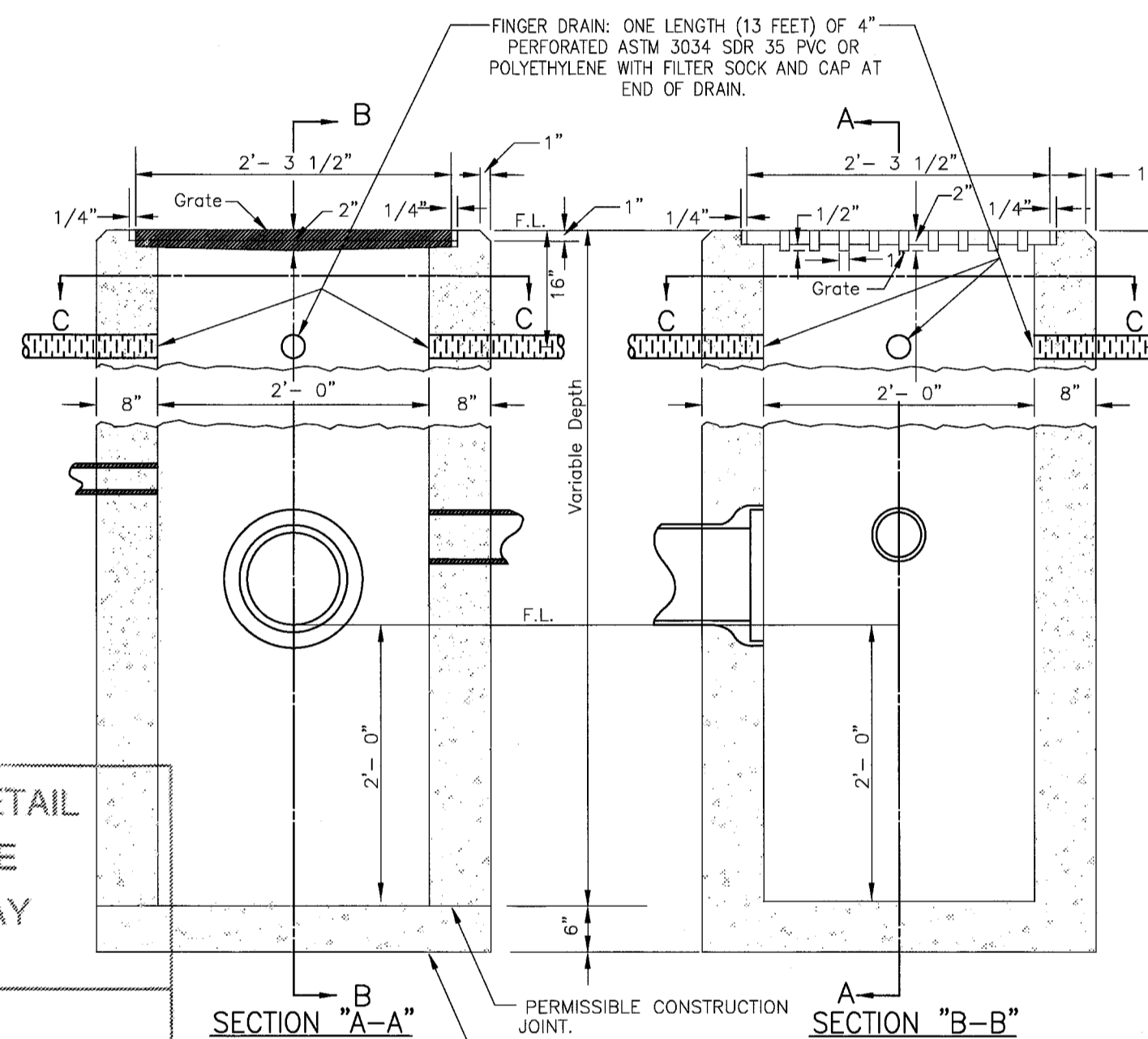
GRATE AND FRAME:
The design shall be essentially the same and equally as strong as the one shown hereon.
WALLS:
Brick or cast-in-place walls have a normal thickness of 8". Precast walls shall have a minimum thickness of 6" and be reinforced sufficiently to permit shipping and handling without damage.
CONCRETE:
Cast-in-place concrete is to be Class C. All precast concrete shall meet the requirements of CMS 706.13 with a minimum of 4% entrained air in the hardened concrete and be marked with the catch basin number.
PRECAST BASE:
If a precast base is used, it shall be set deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Layers of brick shall not be used to adjust the top elevation.
LOCATION AND ELEVATION:
When given on the plans, location and elevation are at the top center of the grate. When side openings are provided, the elevation shall be at the flow line of the side inlet.
MINIMUM DEPTH:
The minimum depth shall be the outside diameter (O.D.) of the outlet pipe plus 4".
GRATE ELEVATION:
Grate elevation is to be placed 4" to 6" below normal ditch, returning to normal 10 feet to 16 feet each side of inlet.
OPENINGS:
Pipe openings shall be the O.D. of the pipe being supplied plus 2" when fabricated or field cut. The interstitial space shall be filled with grout per CMS 601.

ALL STORM SEWER GRATES TO HAVE THE NOTATION:
"DUMP NO WASTE, DRAINS TO WATERWAYS."

STANDARD NO. 2-2-B CATCH BASIN



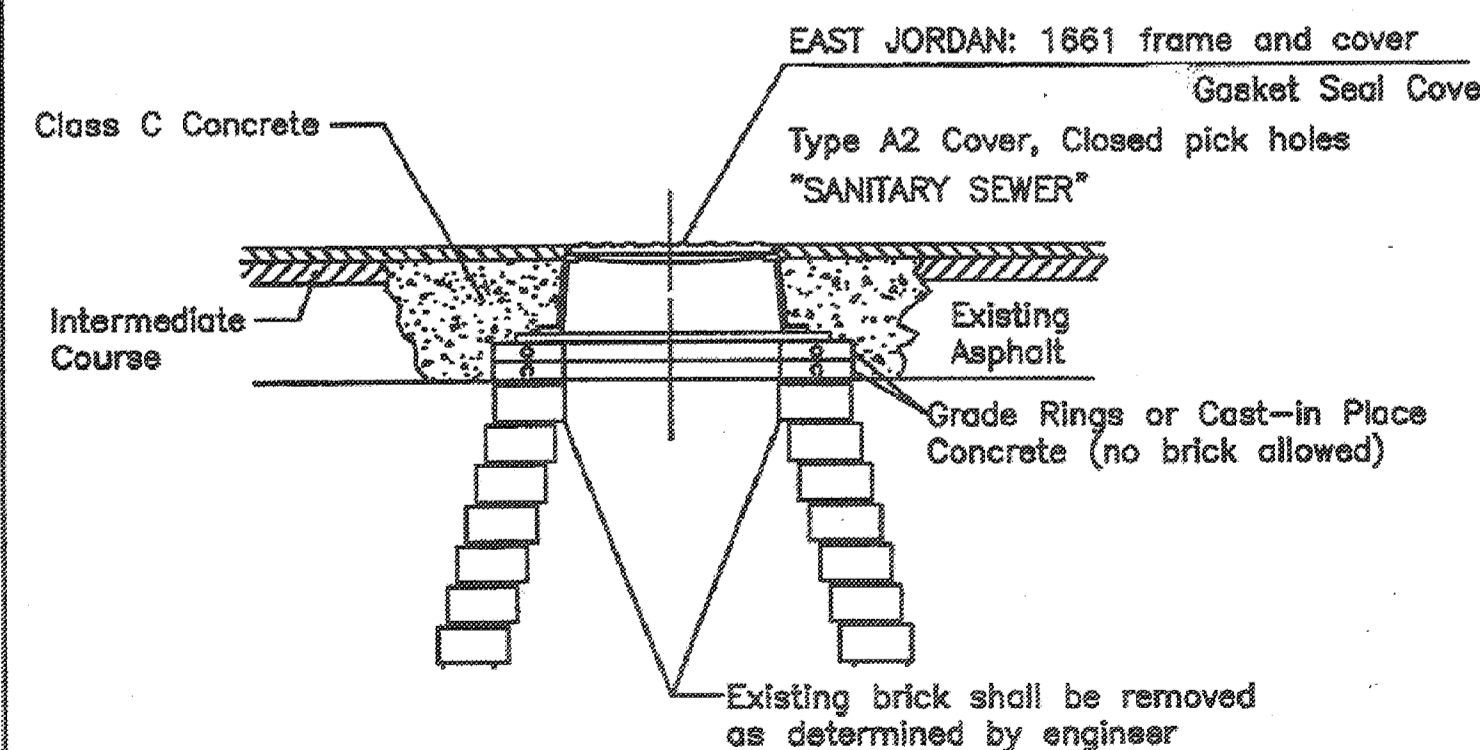
TYPICAL YARD DRAIN DETAIL



ALL STORM SEWER GRATES TO HAVE THE NOTATION:
"DUMP NO WASTE, DRAINS TO WATERWAYS."

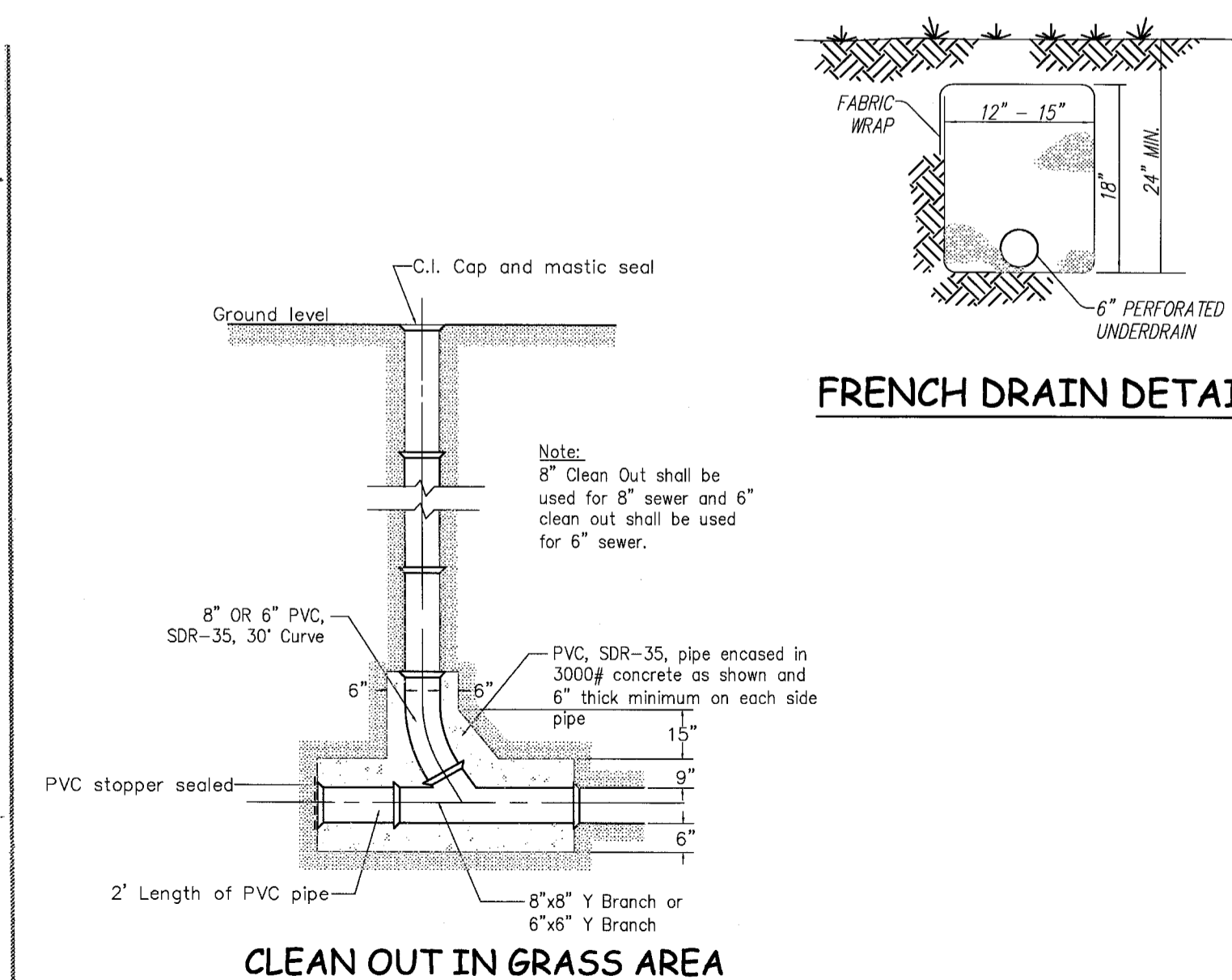
GRATE AND FRAME:
The design shall be essentially the same and equally as strong as the one shown hereon.
WALLS:
Brick or cast-in-place walls have a normal thickness of 8". Precast walls shall have a minimum thickness of 6" and be reinforced sufficiently to permit shipping and handling without damage.
CONCRETE:
Cast-in-place concrete is to be Class C. All precast concrete shall meet the requirements of CMS 706.13 with a minimum of 4% entrained air in the hardened concrete and be marked with the catch basin number.
PRECAST BASE:
If a precast base is used, it shall be set deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Layers of brick shall not be used to adjust the top elevation.
LOCATION AND ELEVATION:
When given on the plans, location and elevation are at the top center of the grate. When side openings are provided, the elevation shall be at the flow line of the side inlet.
MINIMUM DEPTH:
The minimum depth shall be the outside diameter (O.D.) of the outlet pipe plus 4".
GRATE ELEVATION:
Grate elevation is to be placed 4" to 6" below normal ditch, returning to normal 10 feet to 16 feet each side of inlet.
OPENINGS:
Pipe openings shall be the O.D. of the pipe being supplied plus 2" when fabricated or field cut. The interstitial space shall be filled with grout per CMS 601.

STANDARD NO. 2-2-B CATCH BASIN

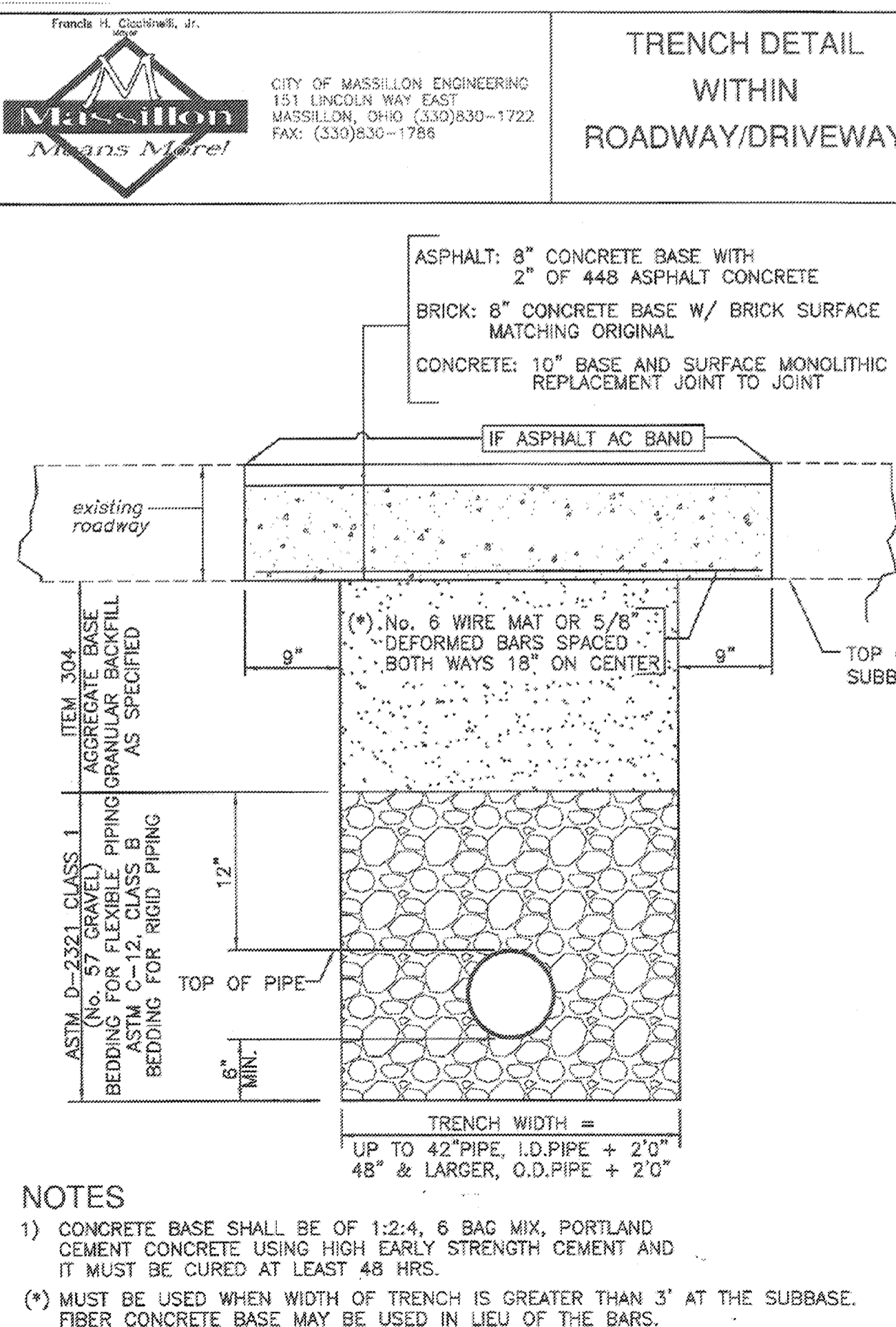


SANITARY SEWER MANHOLE CASTING SET

WORK SHALL INCLUDED ALL REMOVAL AND DISPOSAL OF EXISTING

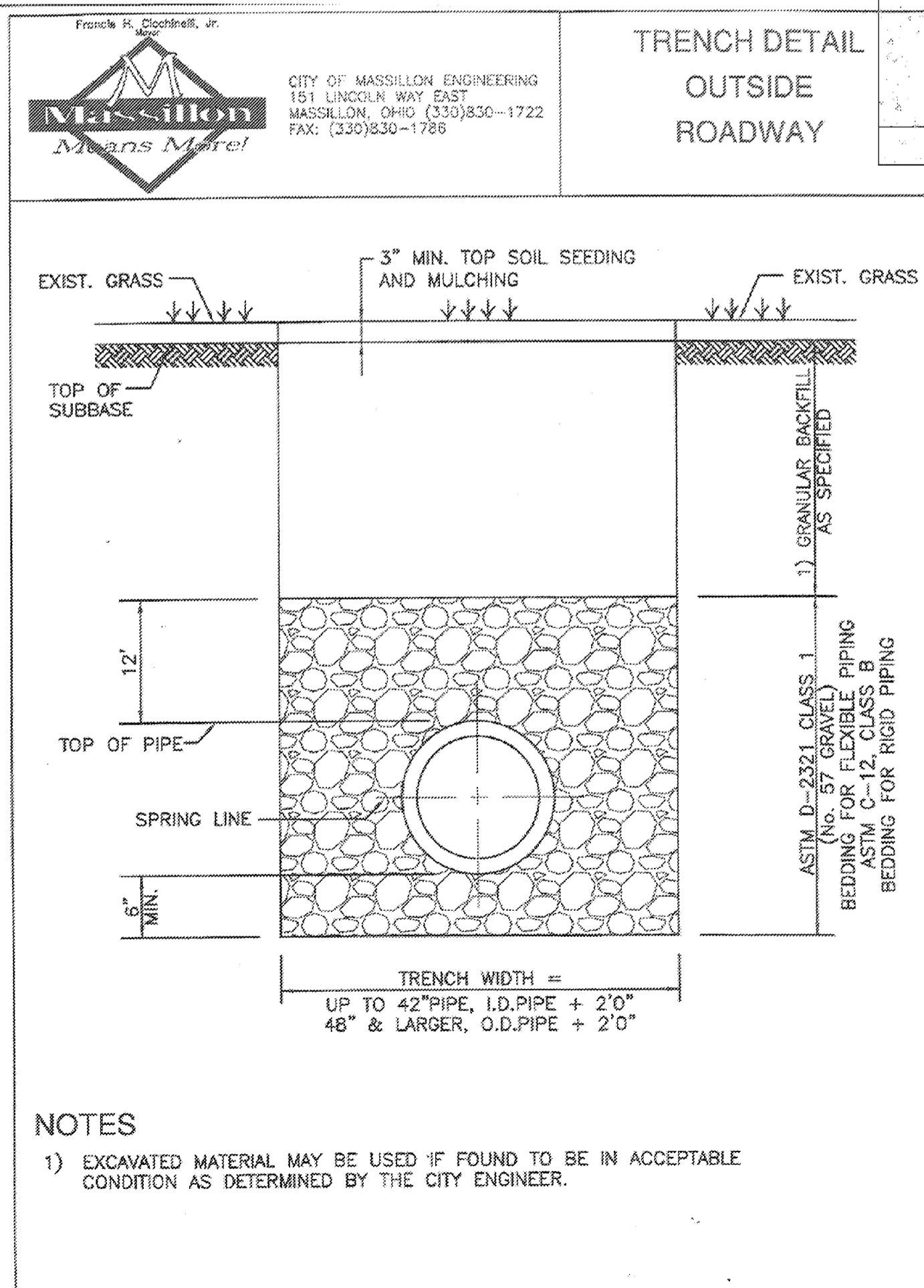


FRENCH DRAIN DETAIL



NOTES

- CONCRETE BASE SHALL BE OF 1:2:4, 6 BAG MIX, PORTLAND CEMENT CONCRETE USING HIGH EARLY STRENGTH CEMENT AND IT MUST BE CURED AT LEAST 48 HRS.
- MUST BE USED WHEN WIDTH OF TRENCH IS GREATER THAN 3' AT THE SUBBASE. FIBER CONCRETE BASE MAY BE USED IN LIEU OF THE BARS.



NOTES

- EXCAVATED MATERIAL MAY BE USED IF FOUND TO BE IN ACCEPTABLE CONDITION AS DETERMINED BY THE CITY ENGINEER.

IMPROVEMENT PLANS FOR: MASSILLON SENIOR SEWER DETAILS

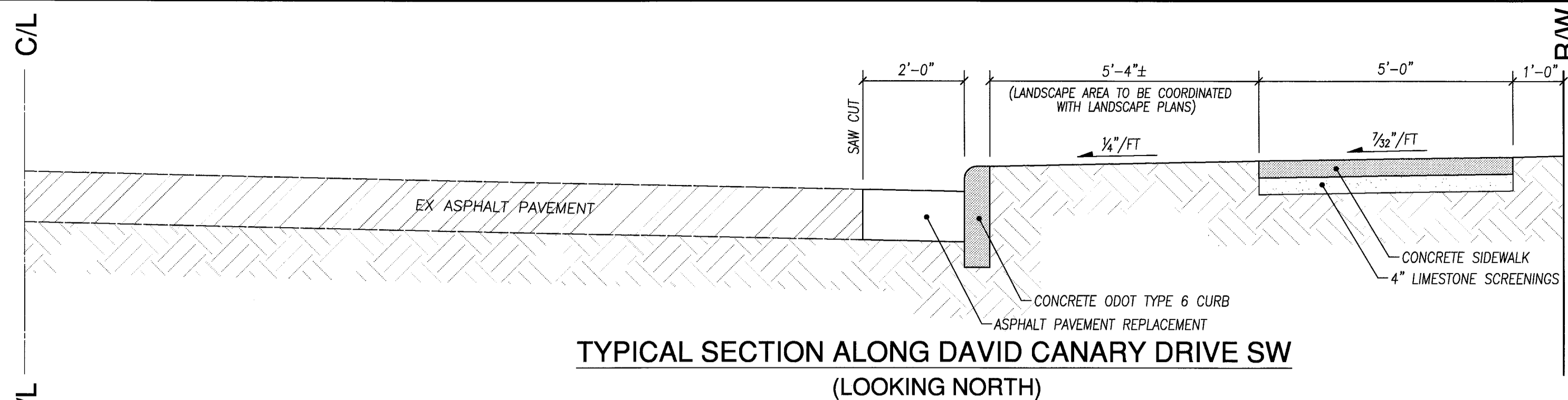
Revisions	Date	Description
1	10.16.09	CHIA 10% Submittal
2	12.23.09	City Comments Addressed
3	01.27.10	City Comments Addressed
4	03.05.10	City Comments Addressed

PLANNERS ENGINEERS SURVEYORS
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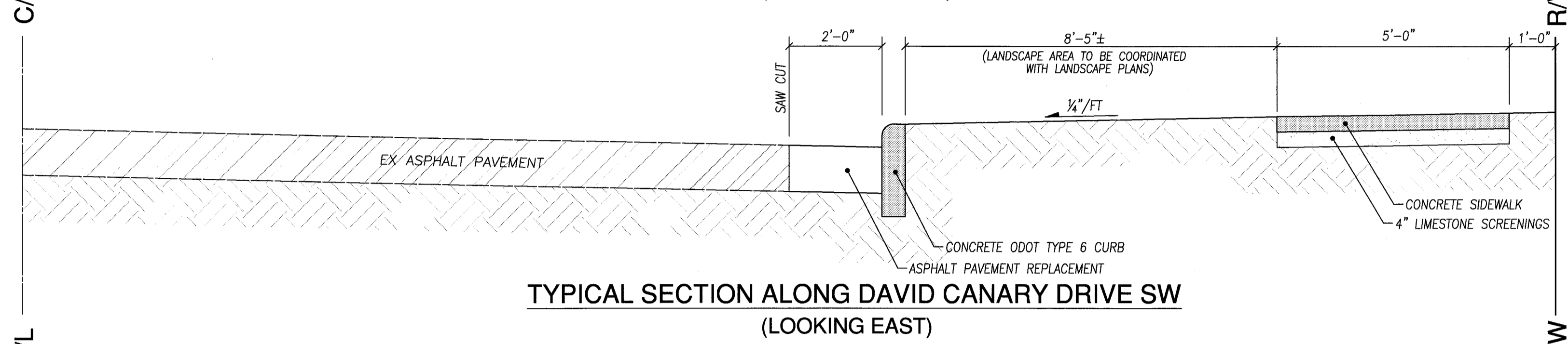


Horizontal Scale	None	Vertical Scale	None
Original Submission	Oct 16, 2009	Last Plot Date	Mar 05, 2010
Drawn By	DLN	Checked By	
Project Number	7426	Field Crew	FS & BH

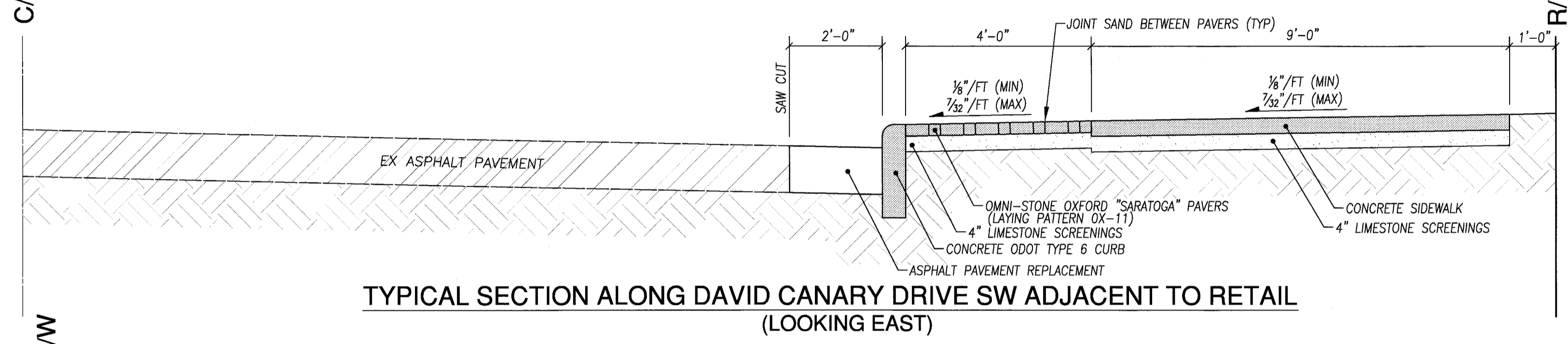
Sheet
9
of
11



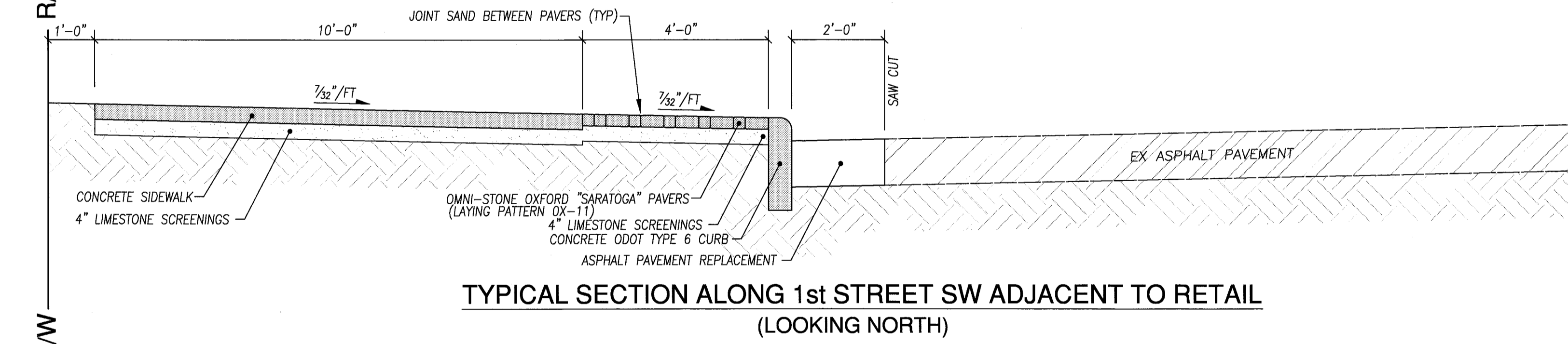
**TYPICAL SECTION ALONG DAVID CANARY DRIVE SW
(LOOKING NORTH)**



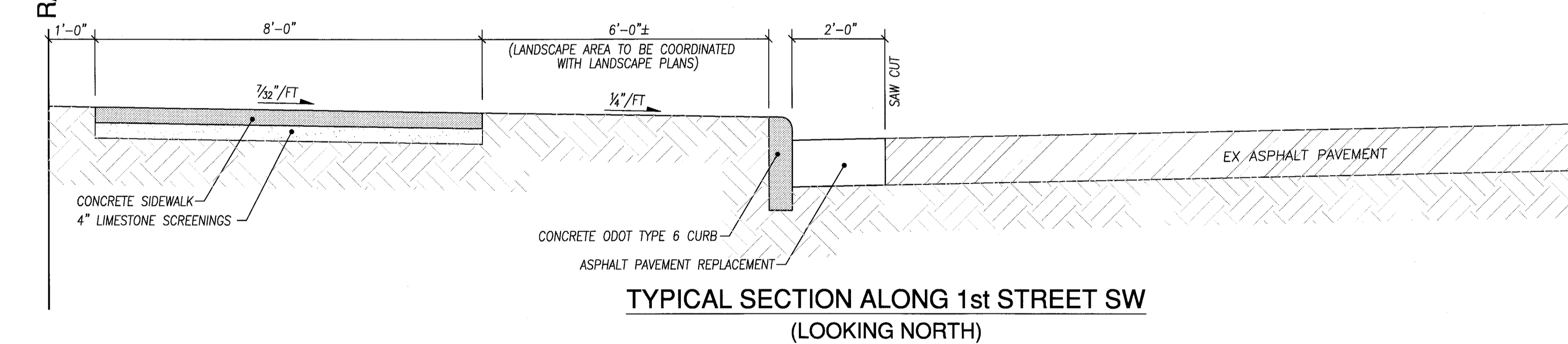
**TYPICAL SECTION ALONG DAVID CANARY DRIVE SW
(LOOKING EAST)**



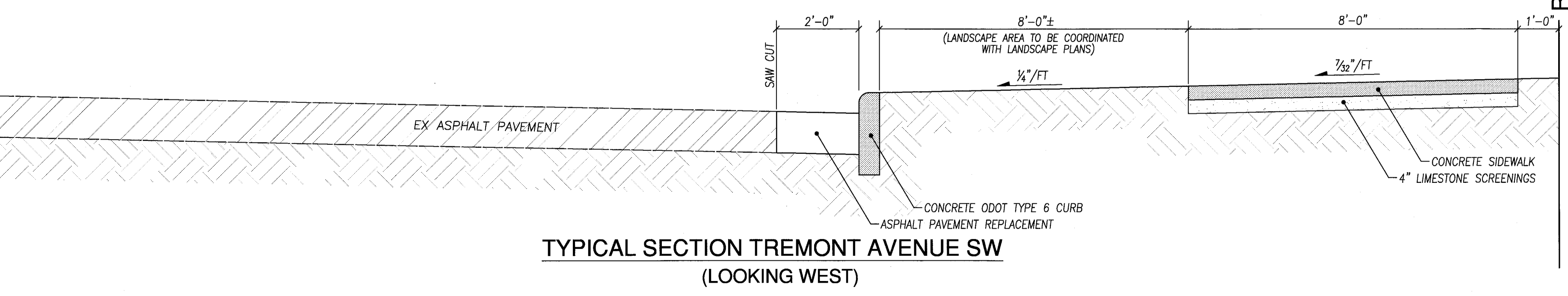
**TYPICAL SECTION ALONG DAVID CANARY DRIVE SW ADJACENT TO RETAIL
(LOOKING EAST)**



**TYPICAL SECTION ALONG 1st STREET SW ADJACENT TO RETAIL
(LOOKING NORTH)**



**TYPICAL SECTION TREMONT AVENUE SW
(LOOKING NORTH)**



**TYPICAL SECTION TREMONT AVENUE SW
(LOOKING WEST)**

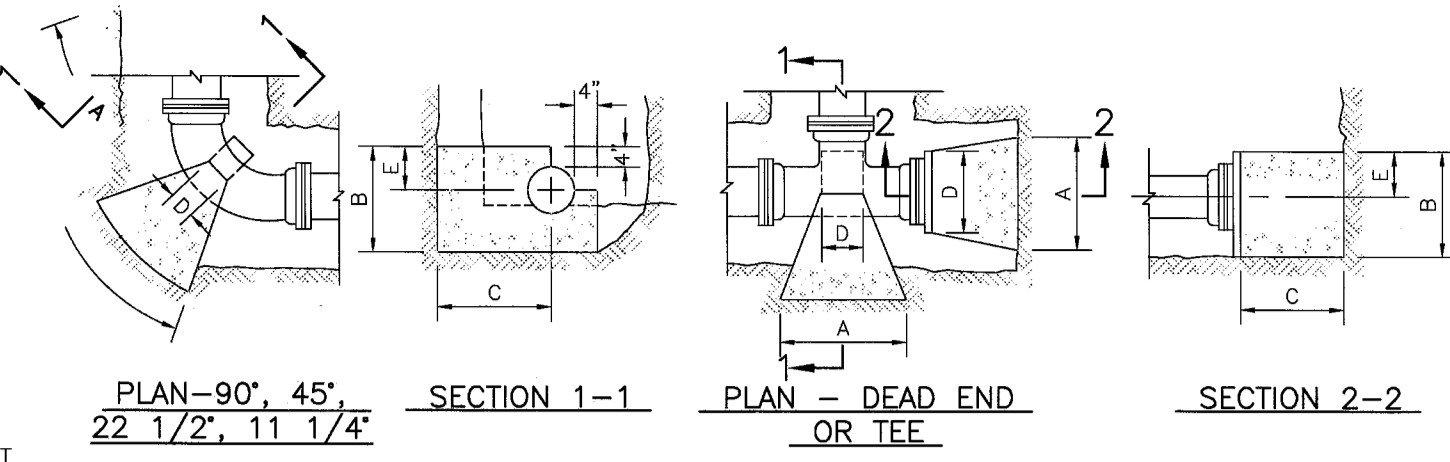
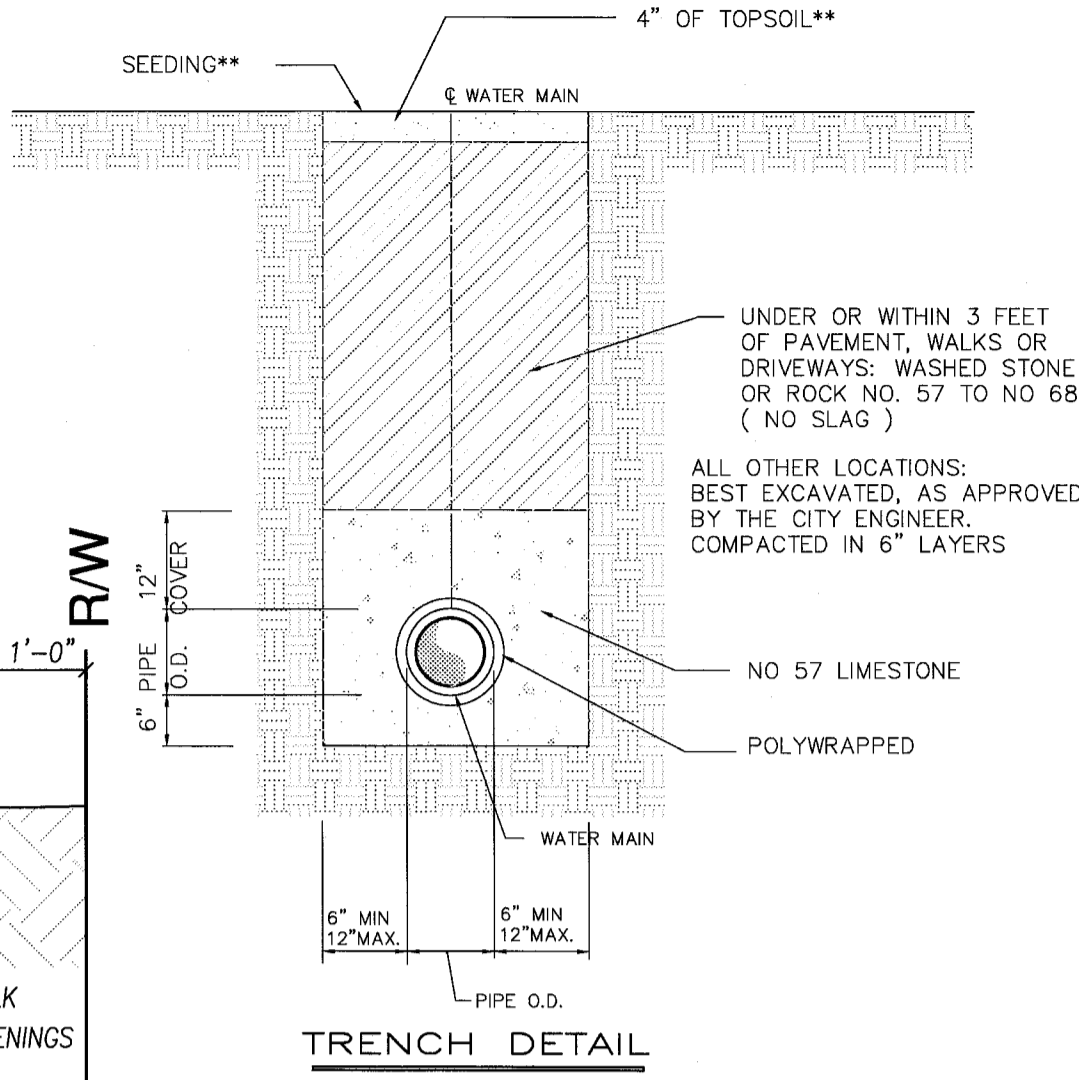


TABLE OF DIMENSION

DIA.	11 1/4" BEND			22 1/2" BEND			45° BEND			90° BEND			TEE-DEAD END		
	A	B	C.Y.	A	B	C.Y.	A	B	C.Y.	A	B	C.Y.	A	B	C.Y.
4"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
6"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
8"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
10"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
12"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
14"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
16"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
18"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
20"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
22"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08
24"	1'-0"	1'-0"	0.07	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08	1'-0"	1'-0"	0.08

DIMENSION C: 4"-10" DIA = 2'-0" 12"-16" DIA = 3'-0" 18"-20" DIA = 4'-0" 24" DIA = 5'-0"

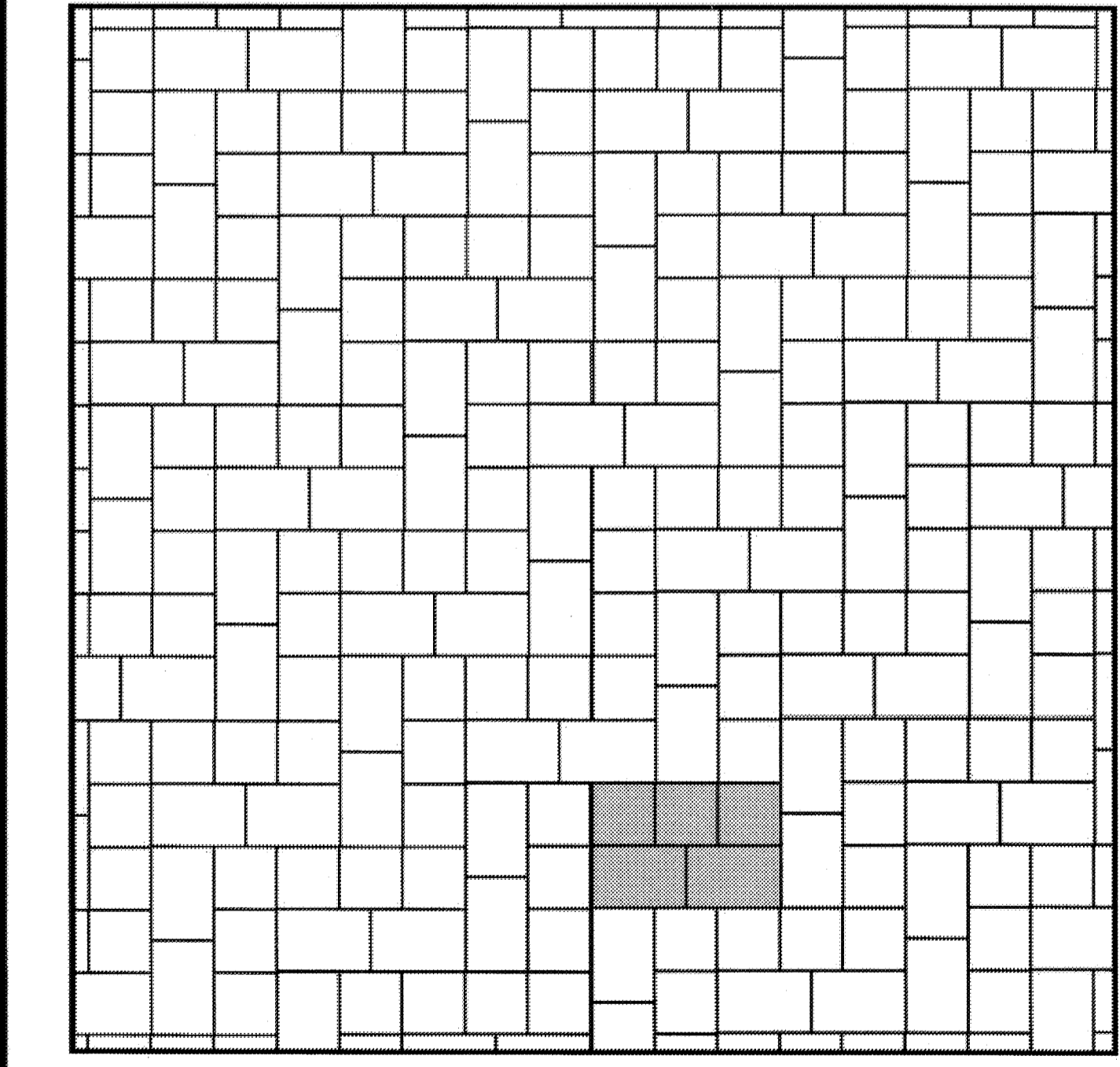
DIMENSION D: 4"-10" DIA = 1'-0" 12"-16" DIA = 2'-0"

DIMENSION E: FOR ALL DIAMETERS E= D/2 + 4"

NOTE: BLOCKING DESIGN BASED ON WORKING PRESSURE 150psi+ 100psi WATER HAMMER AND SOIL BEARING 3000psf.

**THRUST BLOCKING DETAILS
FOR BENDS IN HORIZONTAL PLANE
WORKING PRESSURE UP TO 150psi**

PAVER NOTE:
OMNI-STONE, OXFORD STYLE, SARATOGA COLORED, BRICK PAVERS INSTALLED IN OX-11 PATTERN ARE TO BE FIELD VERIFIED TO MATCH EXISTING PAVEMENT SYSTEM ON OPPOSITE CORNER OF INTERSECTION OF DAVID CANARY AND 1ST STREET. CONTRACTOR TO VERIFY MANUFACTURER AND COLOR WITH THE CITY OF MASSILLON ENGINEER'S OFFICE PRIOR TO ORDERING OR SHIPPING ANY MATERIALS.



Oxford
Pattern OX-11

Repeating Module

Proper laying ratio is 1.5 Squares to 1 Rectangle.
This ratio will fully utilize the bundle content.

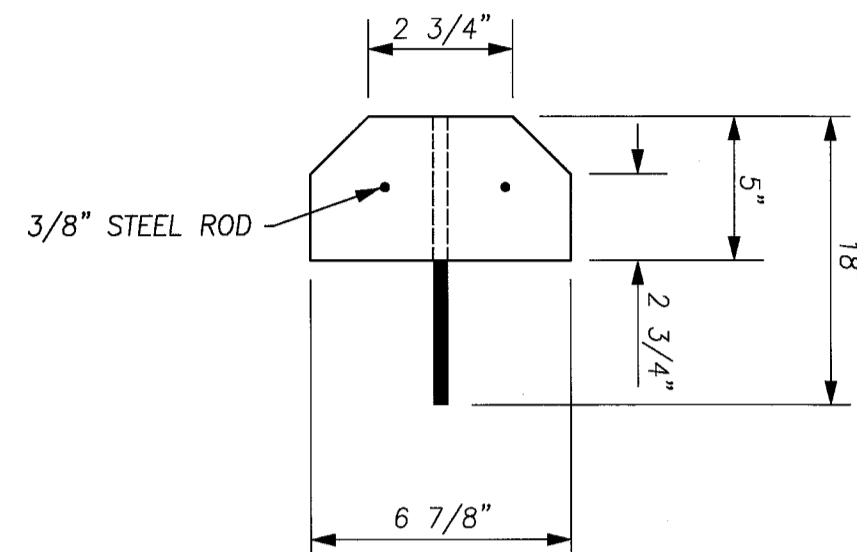
IMPROVEMENT PLANS FOR:
MASSILLON SENIOR
WATER DETAILS AND TYPICAL SECTIONS

Revisions Number	Date	Description
1	10.16.09	CHFA 95% Submittal
2	12.23.09	City Comments Addressed
3	01.27.10	City Comments Addressed
4	03.05.10	City Comments Addressed

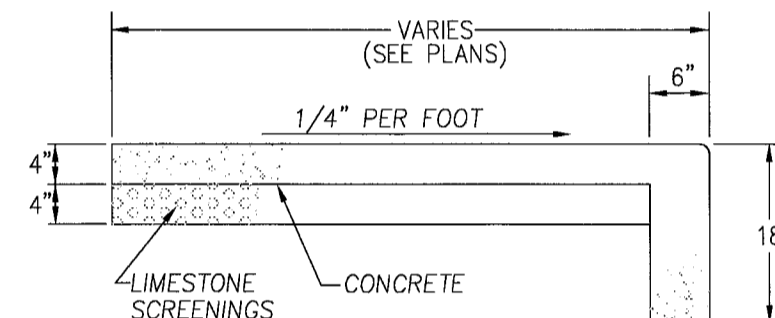
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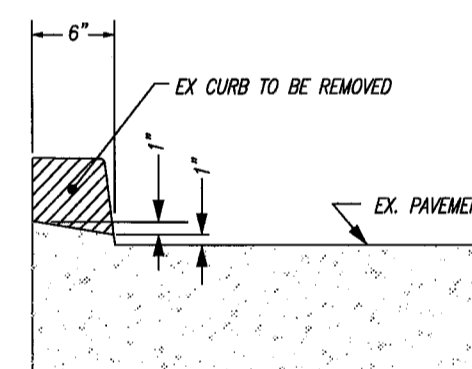
Horizontal Scale	Vertical Scale
None	None
Original Submission Date	Last Plot Date
Oct 16, 2009	Mar 05, 2010
Drawn By	Checked By
DLN	
Project Number	Field Crew
7426	FS & BH



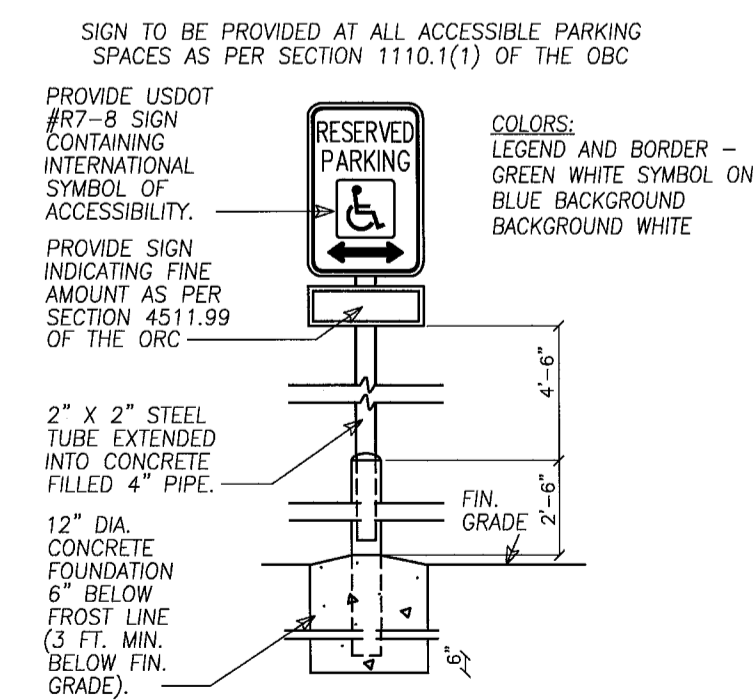
PRE-CAST CONCRETE PARKING STOP



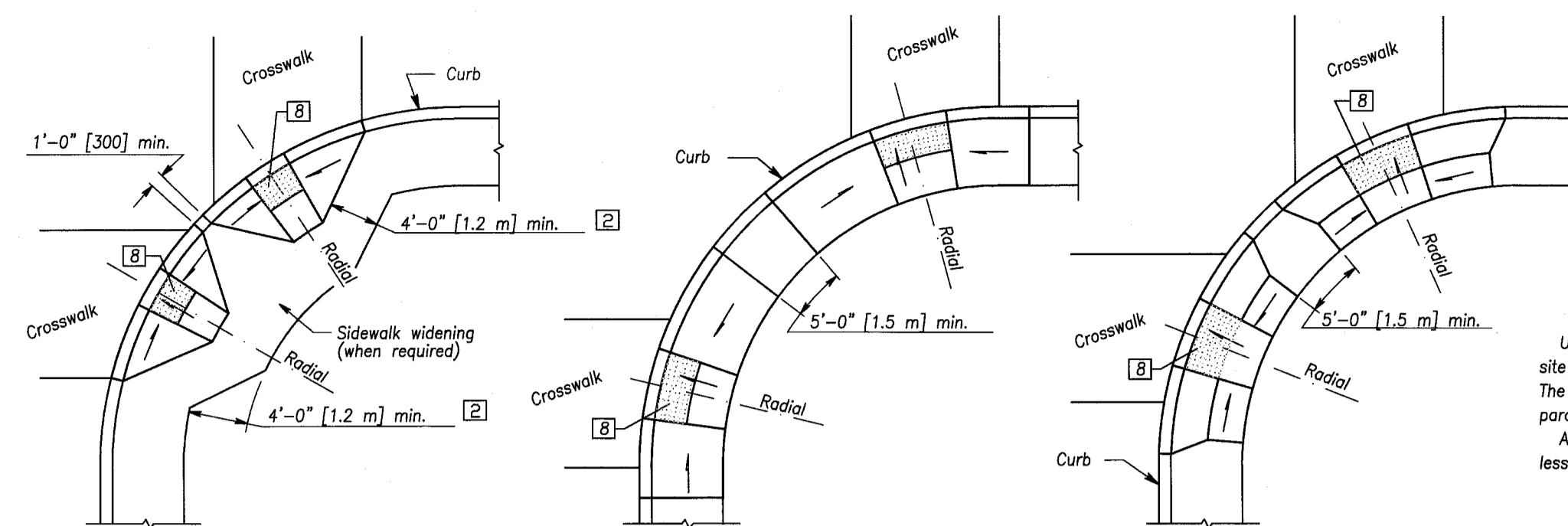
INTEGRAL CURB AND WALK DETAIL



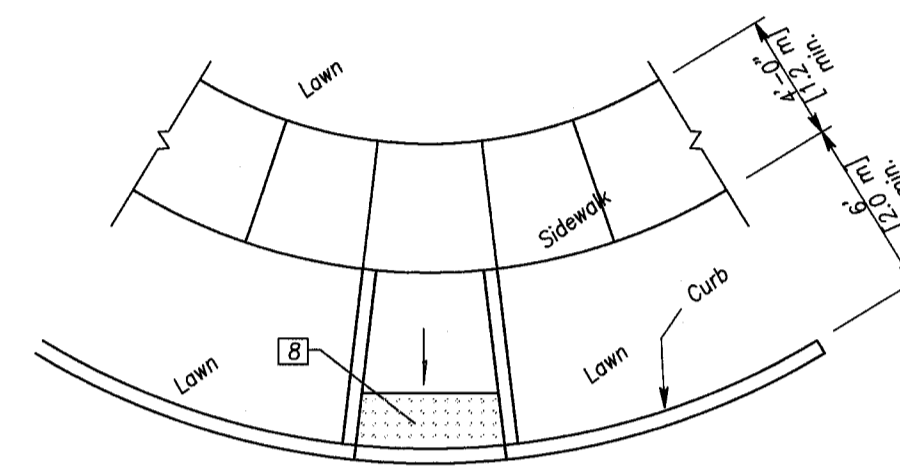
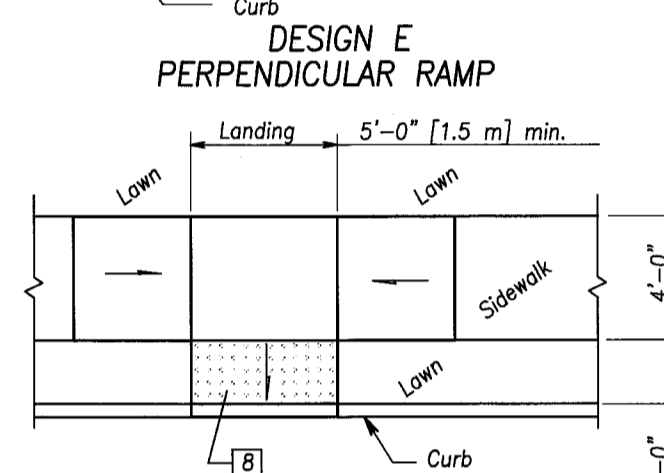
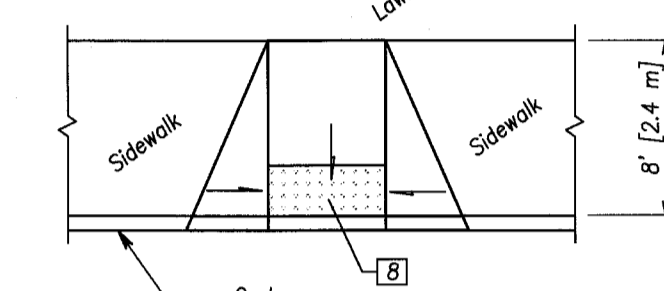
CURB CUT DETAIL



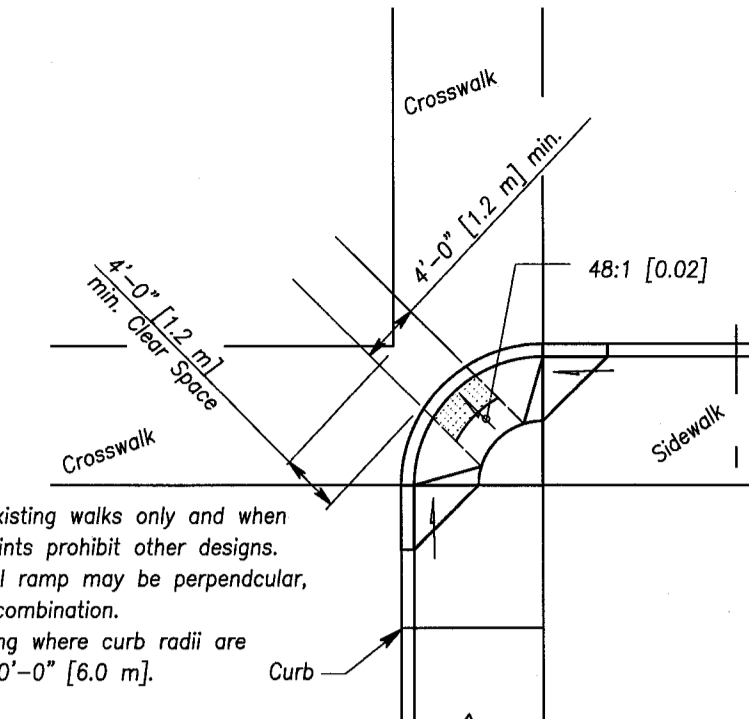
HANDICAPPED PARKING



CORNER CURB RAMP DESIGNS



MID BLOCK CURB RAMP DESIGNS



DESIGN D
DIAGONAL RAMP

NOTES

- 1 May be reduced to 3'-0" [915] in existing sidewalks if the landing is unconstrained along the back edge.
- 2 May be reduced to 3'-4" [1.02 m] in existing sidewalks to better fit the walk configuration or where site conditions are restricted by narrow walks, pole foundations, drainage inlets, etc. The width may be tapered.
- 3 Where landing width (D) has been reduced to 3'-0" [915] the floored sides shall have a maximum slope of 12:1 [0.083].

Flared sides are not required where the edges of a curb ramp are protected by landscaping or other barriers to travel by wheel chair users or pedestrians across the edge of the curb ramp. However, if the flared sides are used in these areas, they may be of any slope.

- 4 The slope of the ramp toward the curb is preferred to be 12:1 [0.083] or flatter related to the horizontal, but the maximum slope shall be 12:1 [0.083] relative to the existing or proposed walk slope.

In existing sidewalks, where the maximum ramp slope (SR) is not feasible, it may be reduced as follows:

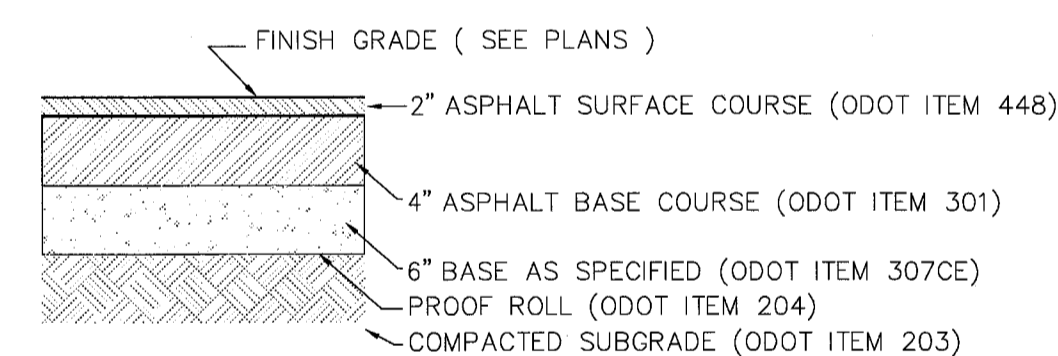
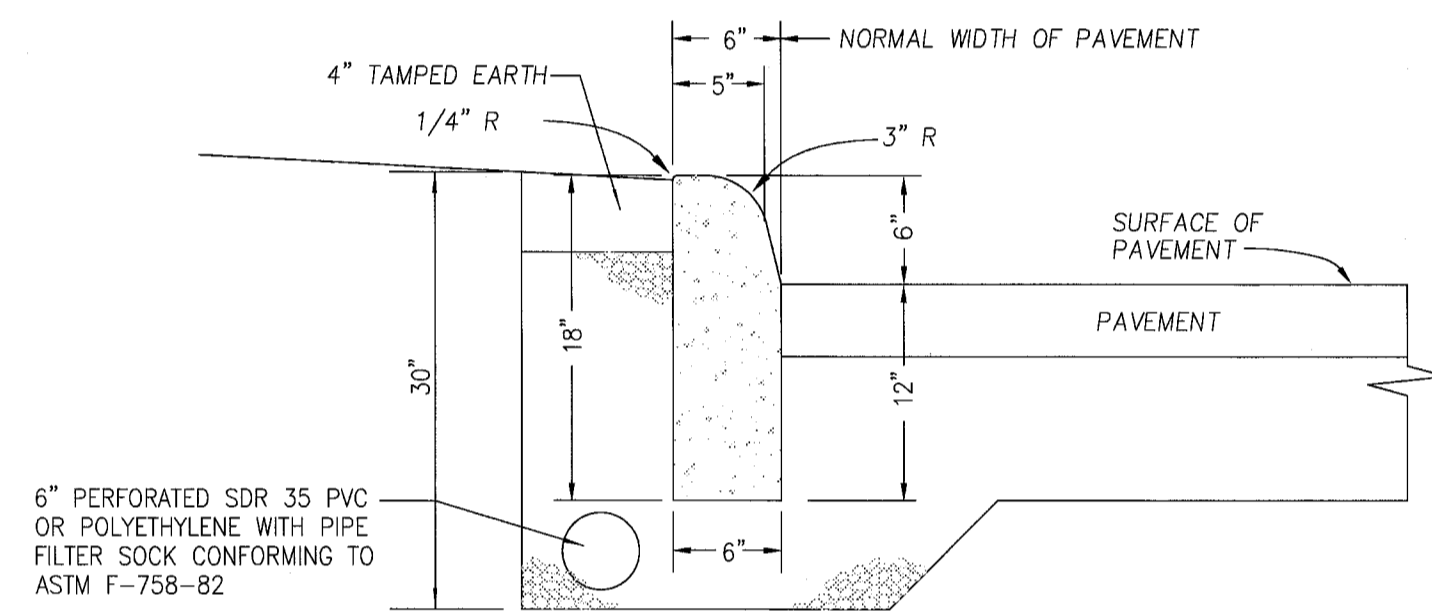
- A) 10:1 [0.10] for a max. rise of 6" [150],
B) 8:1 [0.125] for a max. rise of 3" [75],
C) 6:1 [0.167] over a max. run of 2'-0" [610] for historic areas where a flatter slope is not feasible.

- 5 The minimum length of a perpendicular ramp is 6' [2.0 m] from the back of a 6" [150] curb and may be increased where feasible to obtain a flatter ramp slope or to better blend with the walk configuration.

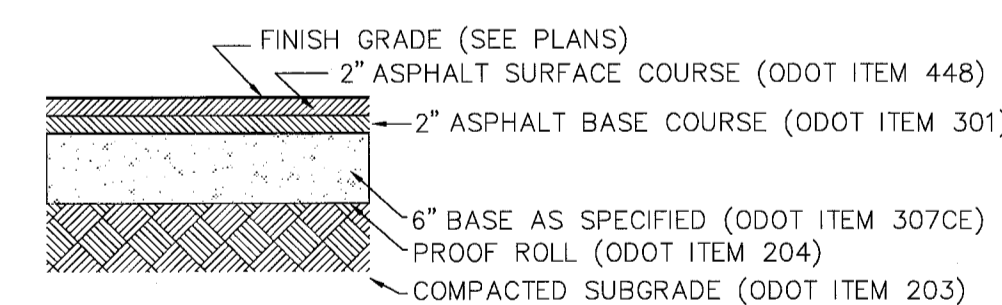
- 6** Gutter counter slopes at the foot of perpendicular curb ramps should not exceed 20:1 [0.05] over a distance of 2'-0" [610] from the curb.
- 7** Dimensions derived by equation are nominal. Construct ramps to meet required slopes and existing conditions.

- 8 Detectable Warnings (truncated domes) are to be installed in the location shown. Dimensions of the domes are 24" [610] from the back of the curb by the width of the ramp.

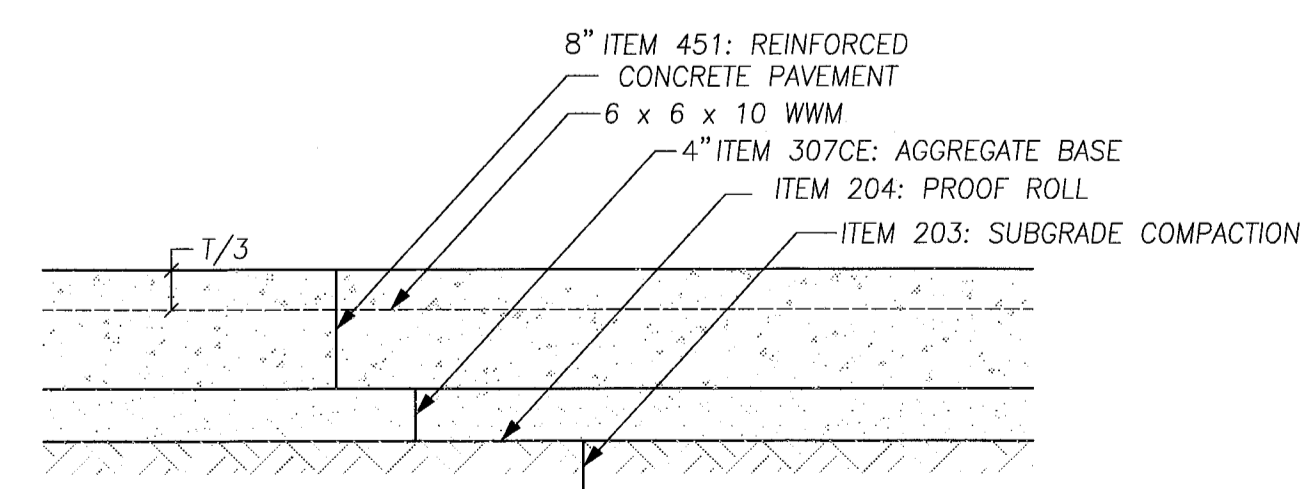
ODOT TYPE 6 CURB & UNDERDRAIN
(OUTSIDE OF RIGHT OF WAYS)



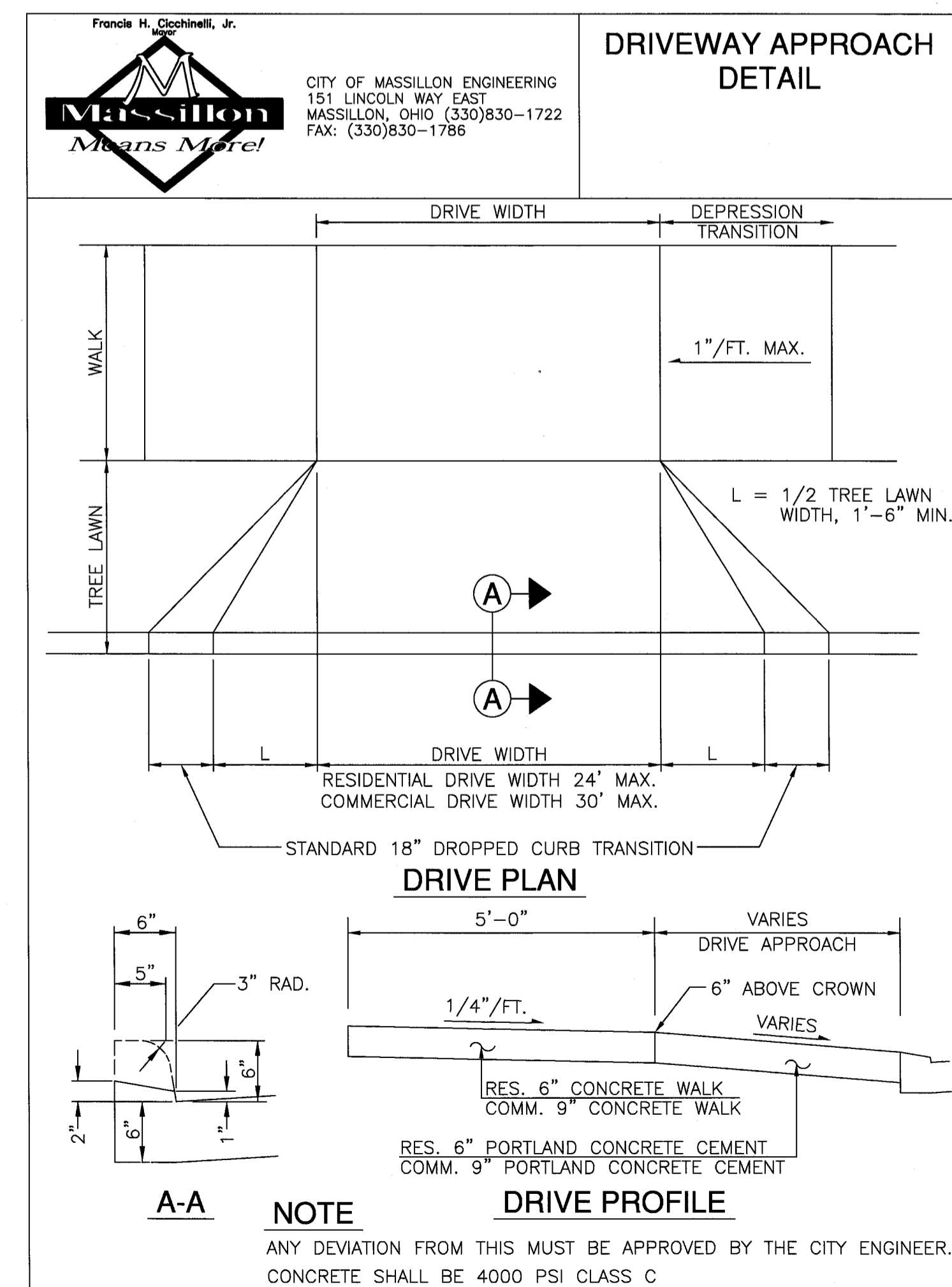
HEAVY DUTY ASPHALT PAVEMENT DETAIL



ASPHALT PAVEMENT DETAIL



CONCRETE PAVEMENT DETAIL



STORMWATER POLLUTION PREVENTION PLAN FOR:
MASSILLON SENIOR

SITUATED IN THE CITY OF MASSILLON, COUNTY OF STARK,
AND STATE OF OHIO

CONSTRUCTION BEGIN: FEBRUARY 2010
CONSTRUCTION COMPLETE: DECEMBER 2011

CONTRACTOR SHALL MAINTAIN A CONSTRUCTION LOG
DOCUMENTING ALL GRADING AND STABILIZATION ACTIVITIES.

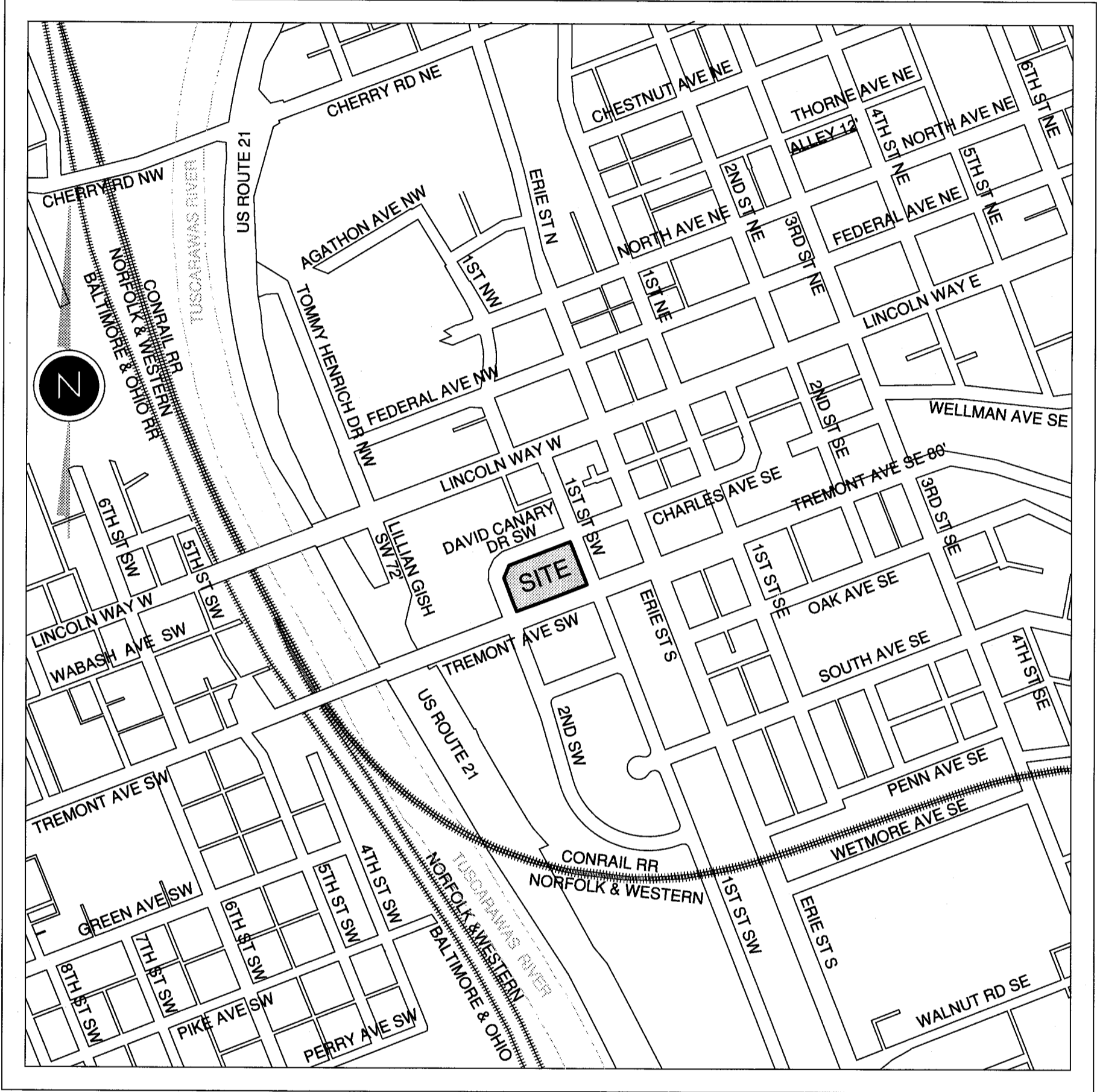
SITE STORMWATER FLOWS INTO AN EXISTING STORM SEWER
(MS4) IN THE CITY OF MASSILLON.

NOI PERMIT: HAS BEEN APPLIED FOR (OCTOBER 13, 2009)

Ohio EPA Certification
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Matthew C. Neff, P.E. #49050

Date



VICINITY MAP
1" = 500'

PROJECT BENCHMARK
USGS BRASS DISK ON CONCRETE MONUMENT
STAMPED MASSILLON 1934, AT INTERSECTION
OF LINCOLN WAY AND 1st STREET SE
NAVD88 ELEVATION 947.12

INDEX OF SHEETS	
TITLE SHEET	SW 1
PRE-CONSTRUCTION CONTROLS	SW 2
TEMPORARY CONSTRUCTION CONTROLS	SW 3
POST-CONSTRUCTION MAINTENANCE PLAN.....	SW 4
SWPPP DETAILS	SW 5
WATER QUALITY DETAILS.....	SW 6

STORM WATER POLLUTION PREVENTION PLAN NARRATIVE:

PROJECT DESCRIPTION
THIS SITE IS CURRENTLY A VACANT BUILDING AND PARKING LOT. THIS IS A REHABILITATION PROJECT AND IMPROVEMENTS TO THE SITE INCLUDE A NEW 52 UNIT SENIOR APARTMENT BUILDING, NEW PARKING LOT, CONCRETE SIDEWALKS, STORM DRAINAGE SYSTEM, ALL APPURTENANT UTILITY CONNECTIONS, GRADING AND LANDSCAPING.

PROJECT COMPLETION STATISTICS
MASSILLON SENIOR PARCEL: 1.46 ACRES
TOTAL DISTURBED AREA: APPROXIMATELY 1.83 ACRES
EXISTING LAND USE FOR THE SITE IS A VACANT BUILDING AND PARKING LOT.
ESTIMATED PRE-CONSTRUCTION IMPERVIOUS AREA: 1.46 ACRES
ESTIMATED PRE-CONSTRUCTION IMPERVIOUS PERCENT: 96%
PRE-CONSTRUCTION RUN-OFF COEFFICIENT: 0.85

PROPOSED LAND USE WILL BE SENIOR APARTMENTS WITH PARKING LOT AND AMENITY IMPROVEMENTS
ESTIMATED POST-CONSTRUCTION IMPERVIOUS AREA: 0.98 ACRES
ESTIMATED POST-CONSTRUCTION IMPERVIOUS PERCENT: 67%
POST-CONSTRUCTION RUN-OFF COEFFICIENT: 0.70

EXISTING SITE SOIL TYPES:
UF: URBAN LAND

REFERENCE: USDA NATIONAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY

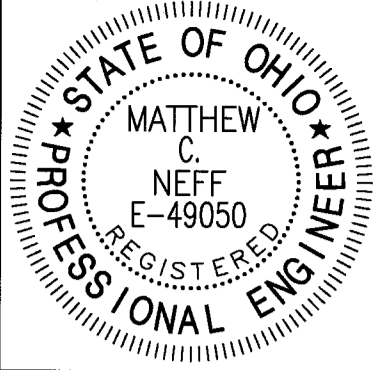
WETLAND INFORMATION:
THERE ARE NO WETLANDS ON THIS SITE.

WATER QUALITY REQUIREMENT EXEMPTION:
PER OPA PERMIT NO. OH000003, PART III.G.2.e: REDEVELOPMENT PROJECTS: SITES THAT HAVE BEEN PREVIOUSLY DEVELOPED WHERE NO POST-CONSTRUCTION BMPs WERE INSTALLED SHALL EITHER ENSURE A 20 PERCENT NET REDUCTION OF THE SITE IMPERVIOUS AREA, PROVIDE FOR TREATMENT OF AT LEAST 20 PERCENT OF THE WQv, OR A COMBINATION OF THE TWO.

THIS SITE QUALIFIES AS A REDEVELOPMENT PROJECT, AND PROPOSED IMPERVIOUS AREAS HAVE A NET REDUCTION OF 29%, THEREFORE PROVIDING PERMANENT WATER QUALITY IS NOT NECESSARY.

DEVELOPER:
MASSILLON SENIOR LLC
5309 TRANSPORTATION BLVD
CLEVELAND, OHIO 44125
JENNIFER BAUS
(216) 475-8900

CIVIL ENGINEER:
M NEFF DESIGN GROUP
14855 BROADWAY AVENUE, SUITE 100-2B
MAPLE HEIGHTS, OHIO 44137
MATTHEW NEFF, P.E., P.S.
(216) 663-8820



STORMWATER POLLUTION PREVENTION PLAN FOR:
MASSILLON SENIOR
TITLE SHEET

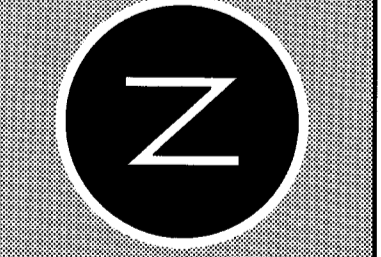
Revisions	Number	Date	Description
	1	10.16.09	CHPA 50% Submittal
	2	12.23.09	City Comments Addressed
	3	01.27.10	City Comments Addressed
	4	03.05.10	City Comments Addressed

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mNEFFdesign group

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tel: 216.663.8820 • fax: 216.663.8821
www.mneffdesign.com



Horizontal Scale	Vertical Scale
None	None
Original Submission	Last Plot Date
Oct 16, 2009	Mar 05, 2010
Drawn By	Checked By
DLN	
Project Number	Field Crew
7426	FS & BH

Sheet

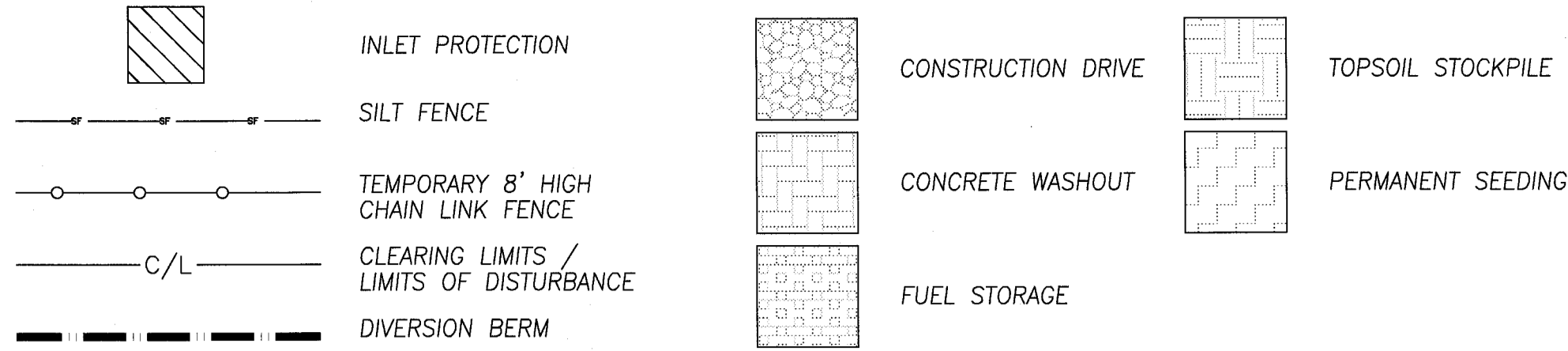
SW 1

UTILITY STATEMENT
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN EXACT LOCATION INDICATED. ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE, THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

- GENERAL CONSTRUCTION:**
- 1) MAINTAIN TEMPORARY CONTROLS UNTIL REMOVAL IS WARRANTED DUE TO PROGRESSION OF WORK.
 - 2) CONTINUE EARTHMOVING OPERATIONS. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE COUNTY CONSERVATION DISTRICT OF LOCATION AND EROSION AND SEDIMENTATION CONTROL MEASURES IMPLEMENTED AT BORROW OR SPOIL SITE OF IMPORT-EXPORT MATERIAL, IF REQUIRED. NOTE THAT THE ON-SITE GEOTECHNICAL ENGINEER WILL CLOSELY MONITOR ALL EARTHMOVING OPERATIONS. CONTRACTOR TO COORDINATE WITH THE OWNER THE PLACEMENT OF SUCH MEASURES.
 - 3) ONCE THE PARKING AREA GRADES HAVE BEEN ESTABLISHED, AS DESIGNATED ON PLANS, THESE AREAS ARE TO BE UTILIZED BY CONTRACTORS FOR STRUCTURE CONSTRUCTION.
 - 4) UTILITY LINE CONSTRUCTION MAY BEGIN IMMEDIATELY FOLLOWING ESTABLISHMENT OF GRADES AND WITH PERMISSION OF THE OWNER.
 - 5) STABILIZE ALL UTILITY TRENCHES AT THE END OF EACH WORKDAY.
 - 6) IN PROPOSED GRASS AREAS, REPLACE TOPSOIL, FINE GRADE AND SEED AS REQUIRED.
 - 7) STABILIZE ALL DISTURBED AREAS WITH PERMANENT SEED AND MULCHING OR CROWN VETCH SEEDING IMMEDIATELY UPON REACHING FINAL GRADE.
 - 8) INSTALL CONCRETE CURBS AND PAVEMENT SUBBASE ONCE ALL UTILITIES HAVE BEEN INSTALLED AND ACCEPTED BY OWNER.
 - 9) WATER QUALITY UNIT IS TO BE INSTALLED PER PLAN AND PER MANUFACTURERS INSTRUCTIONS.
 - 10) TEMPORARY SEDIMENT BASIN IS TO BE REMOVED, SEE INSTRUCTIONS BELOW.
 - 11) DO NOT REPLACE TOPSOIL, SEED, OR PAVEMENT PRIOR TO COMPLETION OF BUILDING SHELL. SHOULD SITEWORK BE COMPLETED PRIOR TO THIS DATE, MULCH DISTURBED AREAS TO BE PLANTED AND INSTALL STONE SUBBASE IN DISTURBED AREAS TO BE PAVED WITHIN FOURTEEN (14) DAYS.
 - 12) FOLLOWING COMPLETION OF BUILDING SHELL AND PAVEMENT INSTALLATION, BEGIN LANDSCAPE INSTALLATION.
 - 13) COMPLETE SITEWORK, PAVEMENT MARKINGS, FINAL LANDSCAPE AND CLEAN-UP.
 - 14) RESEED AND REDRESS ANY AREAS THAT MAY REQUIRE ATTENTION IMMEDIATELY. NOTE THAT LAWN AREAS WILL NOT BE DEEMED STABLE UNTIL A UNIFORM 70% VEGETATIVE DENSITY IS ACHIEVED.
 - 15) ALL EROSION MEASURES SHALL REMAIN IN PLACE UNTIL THE SITE IS STABILIZED. ALL AREAS OF VEGETATIVE SURFACE STABILIZATION, WHETHER TEMPORARY OR PERMANENT, SHALL BE CONSIDERED TO BE IN PLACE AND FUNCTIONAL WHEN THE REQUIRED UNIFORM RATE OF COVERAGE (70%) IS OBTAINED.
 - 16) IF, FOR ANY REASON, THE PROJECT IS SUSPENDED, THE CONTRACTOR SHALL INSURE THAT ALL INSTALLED EROSION MEASURES ARE FUNCTIONING AND PROPERLY MAINTAINED DURING THIS PERIOD, AND THAT ALL BARE SOILS ARE SEEDED AND MULCHED WITH TEMPORARY SEED MIXTURE.
 - 17) THE FOLLOWING ITEMS MUST BE COMPLETED IN ORDER BY THE CONTRACTOR, ONCE THE SITE HAS BEEN DEEMED STABLE:
 - A) REMOVE CONSTRUCTION ENTRANCE PRIOR TO COMPLETION OF PAVING
 - B) SITE CLEAN UP
 - C) RESEED ANY AREAS THAT REQUIRE ADDITIONAL SEED
 - D) SILT FENCE SHOULD BE CLEANED, REMOVED, BACKFILLED AND SEEDED WITH PERMANENT SEEDING.
 - E) VERIFY POSITIVE DRAINAGE FLOW IN ALL DRAINAGE STRUCTURES

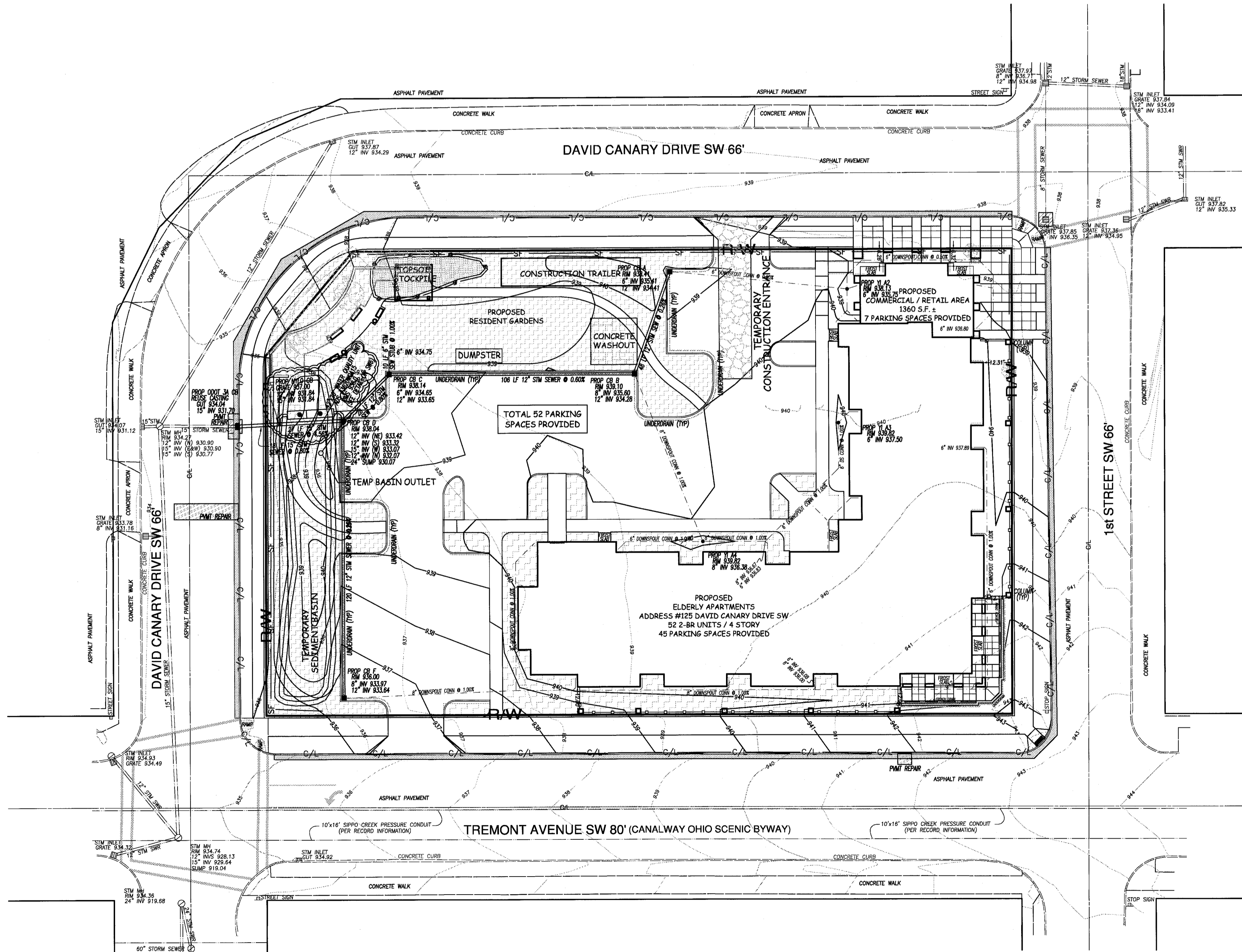
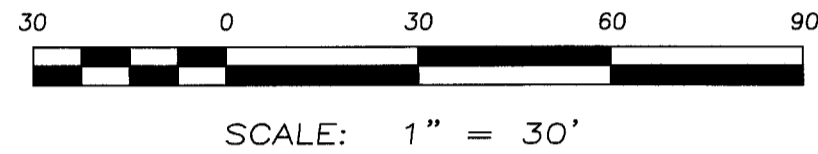
BASIC TEMPORARY SEDIMENT BASIN ELIMINATION:

- A) NOTE THAT TEMPORARY SEDIMENT BASIN WILL BE REMOVED.
- B) FOLLOWING THE STABILIZATION OF THE SITE AND PRIOR TO BACKFILLING OF SEDIMENT BASIN, PUMP ALL STANDING WATER FROM WITHIN THE BASIN TO A GEOTEXTILE FILTER BAGS OR OTHER CEPA APPROVED METHOD EQUALLY ACCEPTED FOR A DEWATERING OPERATIONS. REMOVE AND DISPOSE OF ALL UNSUITABLE SEDIMENT MATERIALS ACCUMULATED WITHIN THE BASIN PRIOR TO PLACEMENT OF COMPACTED SOIL.
- C) COMPLETE FINAL GRADING WITHIN TEMPORARY SEDIMENT BASIN TO BRING ELEVATIONS TO FINAL GRADE AS SHOWN ON GRADING PLANS.
- D) FINE GRADE AND SEED THE AREA OF NEWLY PLACED COMPACTED FILL.

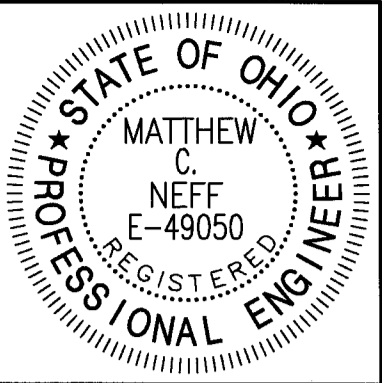


LEGEND

- SAN MANHOLE
- STORM MANHOLE
- CATCH BASIN
- HYDRANT
- WATER LINE VALVE
- WATER SERVICE VALVE
- UTILITY POLE
- STREET LIGHT ASSEMBLY
- GUY ANCHOR
- BOLLARD
- CHAIN LINK FENCE
- GUARDRAIL
- GAS VALVE
- TELEPHONE MANHOLE
- ELECTRIC METER
- TRAFFIC BOX
- ELECTRIC BOX
- CROSSWALK SIGNAL
- DECIDUOUS TREE



PROJECT BENCHMARK
USGS BRASS DISK ON CONCRETE MONUMENT
STAMPED MASSILLON 19.34
AT INTERSECTION OF LINCOLN WAY
AND 1st STREET SE
NAVD88 ELEVATION 947.12



STORMWATER POLLUTION PREVENTION PLAN FOR:
MASSILLON SENIOR
TEMPORARY CONSTRUCTION CONTROLS

Revisions	Number	Date	Description
	1	10.18.09	CHFA 50% Submittal
	2	12.23.09	City Comments Addressed
	3	01.27.10	City Comments Addressed
	4	03.05.10	City Comments Addressed

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Horizontal Scale 1" = 30'	Vertical Scale None
Original Submission Oct 16, 2009	Last Plot Date Mar 05, 2010
Drawn By DLN	Checked By
Project Number 7426	Field Crew FS & BH
Sheet	

SW 3

Drawing File: \\V400-7699\7426 Massillon Elderly 7426 Title.dwg Mar 05, 2010 - 2:04pm

PERMANENT STORMWATER MANAGEMENT PRACTICES
DETENTION WAS NOT REQUIRED IN THE DEVELOPMENT OF THIS PROJECT SINCE IT WAS A REDEVELOPMENT PROJECT THAT DECREASED THE IMPERVIOUSNESS OF THE SITE BY MORE THAN 20%, THUS MEETING THE OEPA RECOMMENDATIONS FOR STORMWATER MANAGEMENT.

LONG TERM MAINTENANCE OF PERMANENT BMPS
THE OWNER WILL MAINTAIN THE WATER QUALITY UNIT SYSTEM AND HAVE YEARLY INSPECTIONS PERFORMED TO MAKE SURE IT IS OPERATING AT MAXIMUM CAPABILITIES. THE INSPECTION WILL INCLUDE VACUUMING OF THE WATER QUALITY UNIT BY A VACUUM TRUCK. IF DEFICIENCIES ARE FOUND SOONER, THE OWNER WILL REPAIR/CLEAN AS NECESSARY.

CATCH BASINS WILL HAVE TRASH REMOVED AS IT IS NOTICED OR AT THE TIME OF THE YEARLY INSPECTION. CATCH BASIN SUMPS WILL HAVE THE AGGREGATE AND/OR SEDIMENT REMOVED WHEN IT BECOMES HALF FULL BY A VACUUM TRUCK. THIS MAINTENANCE IS THE RESPONSIBILITY OF THE OWNER.

ALL STORM SEWER MANHOLES AND CATCH BASIN GRATES TO HAVE THE NOTATION: "DUMP NO WASTE, DRAINS TO WATERWAYS". THIS IS A NON-STRUCTURAL PRACTICE.

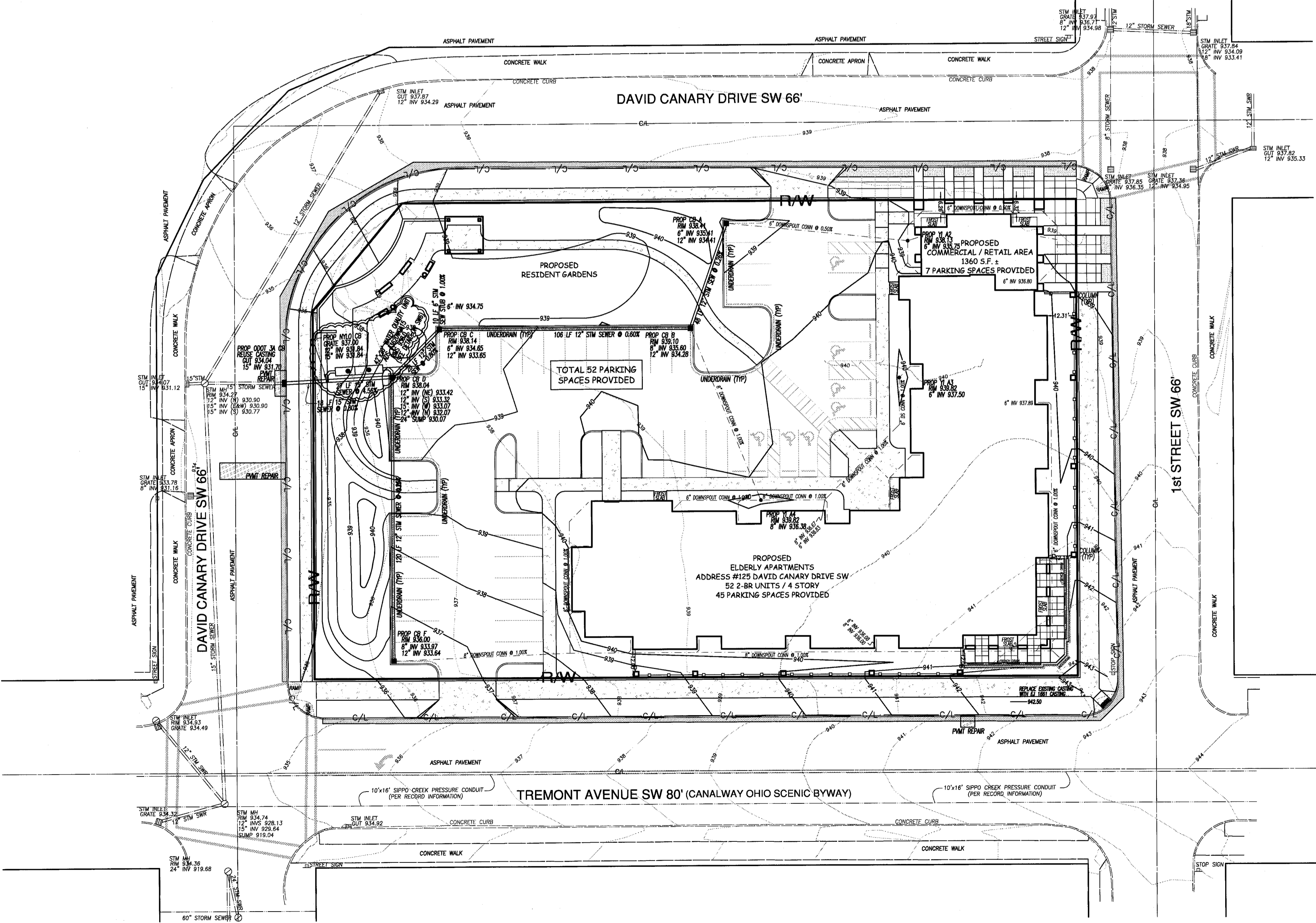
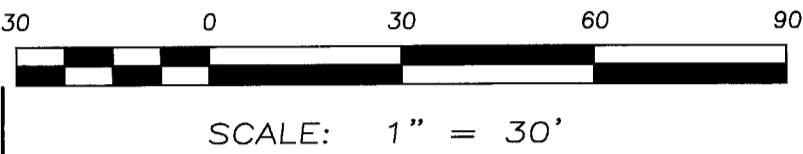
SEASONAL MAINTENANCE OF LANDSCAPING AND IRRIGATION SYSTEM. MOW GRASS, DISPOSE OF FALLEN/DEAD TREE BRANCHES AND LITTER AS NECESSARY. AREAS WHICH BECOME EXPOSED SHALL BE RE-VEGETATED AS NECESSARY. (TYP) - THIS MAINTENANCE IS THE RESPONSIBILITY OF OWNER.

KEEP PARKING AREAS AND DRIVES FREE OF LITTER AND DEBRIS. CLEAN SPILLS IN METHOD APPROPRIATE WITH TYPE OF CHEMICAL BEING CLEANED, SWEEP AREAS ANNUALLY, WASHING OF POLLUTANTS/CHEMICALS INTO STORM DRAINS IS STRICTLY PROHIBITED. AREAS SHALL BE SNOW/LOWED AS NECESSARY TO MINIMIZE THE USE OF DE-ICING AGENTS. THIS MAINTENANCE IS THE RESPONSIBILITY OF OWNER.

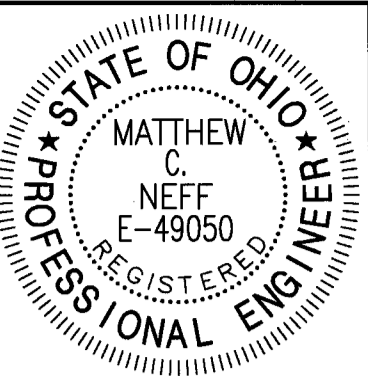
REMOVE TRASH AND DEBRIS FROM ALL FENCES.

LEGEND

- SAN MANHOLE
- STORM MANHOLE
- CATCH BASIN
- HYDRANT
- WATER LINE VALVE
- UTILITY POLE
- STREET LIGHT ASSEMBLY
- GUY ANCHOR
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USGS BRASS DISK ON CONCRETE MONUMENT
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STORMWATER POLLUTION PREVENTION PLAN FOR:
MASSILLON SENIOR
POST CONSTRUCTION MAINTENANCE PLAN

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1	10.16.09	CHFA 50% Submittal
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Sheet

SW 4

TEMPORARY SEEDING			
SEEDING DATES	SPECIES	SEEDING RATE	
		LB./1,000 SQ FT	LB./AC.
MARCH 1 TO AUGUST 15	OATS	3	128 (4 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	PERENNIAL RYEGRASS	1	40
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	ANNUAL RYEGRASS	1.25	55
	PERENNIAL RYEGRASS	3.25	142
	CREEPING RED FESCUE	0.4	17
	KENTUCKY BLUEGRASS	0.4	17
AUGUST 16 TO OCTOBER 31	OATS	3	128 (3 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	RYE	3	112 (2 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	WHEAT	3	120 (2 BUSHEL)
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	PERENNIAL RYEGRASS	1	40
NOVEMBER 1 TO FEBRUARY 29	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	PERENNIAL RYEGRASS	1	40
	TALL FESCUE	1	40
	ANNUAL RYEGRASS	1	40
	ANNUAL RYEGRASS	1.25	40
	PERENNIAL RYEGRASS	3.25	40
	CREEPING RED FESCUE	0.4	40
	KENTUCKY BLUEGRASS	0.4	40
	USE MULCH ONLY OR DORMANT SEEDING		
NOTE: OTHER APPROVED SEED SPECIES MAY BE SUBSTITUTED			

- 1) STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND STABILIZED WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE.
- 2) TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR 21 DAYS OR GREATER. THESE IDLE AREAS SHALL BE SEEDD WITHIN 7 DAYS AFTER GRADING.
- 3) THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. TEMPORARY SEEDING SHOULD NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
- 4) TEMPORARY VEGETATION SEEDING RATES SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION, WHICH MAY REQUIRE USE OF SOIL AMENDMENTS, BASE RATES FOR LIME AND FERTILIZER SHALL BE USED.
- 5) SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SPREADER, DRILL, CUTLIPACKER, SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CUTLIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.
- NOTE:**
APPLICATIONS OF TEMPORARY SEEDING SHALL INCLUDE MULCH, WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES ON FAVORABLE, VERY FLAT SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION. IF MULCH SHALL BE USED, FOLLOW THE REQUIREMENTS AND INSTRUCTIONS IN THE MULCH APPLICATION.

TEMPORARY SEEDING

- 1) MULCH AND OTHER APPROPRIATE VEGETATIVE PRACTICES SHALL BE APPLIED TO DISTURBED AREAS WITHIN 7 DAYS OF GRADING IF THE AREA IS TO REMAIN DORMANT (UNDISTURBED) FOR MORE THAN 21 DAYS OR ON AREAS AND PORTIONS OF THE SITE WHICH CAN BE BROUGHT TO FINAL GRADE.
- 2) MULCH SHALL CONSIST OF ONE OF THE FOLLOWING:
- STRAW SHALL BE UNROTTED SMALL GRAIN STRAW APPLIED AT THE RATE OF 2 TONS/AC. OR 90 LB./1,000 SQ. FT. (TWO TO THREE BALES) THE STRAW MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQ. FT. SECTIONS AND PLACE TWO 45-LB BALES OF STRAW IN EACH SECTION.
 - WOOD CELLULOSE FIBER SHOULD BE USED AT 2,000 LB./AC. OR 46 LB./1,000 SQ. FT.
 - ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS AND ROLLED EROSION CONTROL PRODUCTS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD MULCH/CHIPS APPLIED AT 10-20 TONS/AC.
- 3) MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR RUNOFF. THE FOLLOWING ARE ACCEPTABLE METHODS FOR ANCHORING MULCH.
- USE A DISK, CRUMPER, OR SIMILAR TYPE TOOL, SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT BE LEFT GENERALLY LONGER THAN 6 INCHES.
 - USE MULCH NETTINGS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, FOLLOWING ALL PLACEMENT AND ANCHORING REQUIREMENTS. USE IN AREAS OF WATER CONCENTRATION AND STEEP SLOPES TO HOLD MULCH IN PLACE.
 - FOR STRAW MULCH, SYNTHETIC BINDERS SUCH AS ACRYLIC DUR (AGRI-TAC), DCA-70, PETROSE, TERRA TACK OR EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER. ALL APPLICATIONS OF SYNTHETIC BINDERS MUST BE CONDUCTED IN SUCH A MANNER WHERE THERE IS NO CONTACT WITH WATERS OF THE STATE.
 - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LB/AC. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB/100 GAL. OF WOOD CELLULOSE FIBER.

MULCHING

- NOTES:**
- 1) SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.
 - 2) ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS WHICH MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
 - 3) TO PREVENT WATER PONDED BY THE SILT FENCE FROM FLOWING AROUND THE ENDS, EACH END SHALL BE CONSTRUCTED UPSLOPE SO THAT THE ENDS ARE AT A HIGHER ELEVATION.
 - 4) WHERE POSSIBLE, SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.
 - 5) WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5 FT. (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE REESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE SILT FENCE.
 - 6) THE HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM OF 16 IN. ABOVE THE ORIGINAL GROUND SURFACE.
 - 7) THE SILT FENCE SHALL BE PLACED IN AN EXCAVATED OR SLICED TRENCH CUT A MINIMUM OF 6 INCHES DEEP. THE TRENCH SHALL BE MADE WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE, OR OTHER SUITABLE DEVICE THAT WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
 - 8) THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWNSLOPE SIDE OF THE GEOTEXTILE. A MINIMUM OF 8 INCHES OF GEOTEXTILE MUST BE BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6-INCH DEEP TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED ON BOTH SIDES OF THE FABRIC.
 - 9) SEAMS BETWEEN SECTION OF SILT FENCE SHALL BE OVERLAPPED WITH THE END STAKES OF EACH SECTION WRAPPED TOGETHER BEFORE DRIVING INTO THE GROUND.
 - 10) SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: A) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, B) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR C) OTHER PRACTICES SHALL BE INSTALLED.
 - 11) THE LENGTH OF FENCE POSTS SHALL BE A MINIMUM OF 32 INCHES. WOOD POSTS WILL BE 2-BY-2 INCHES NOMINAL DIMENSIONED HARDWOOD OF SOUND QUALITY. THEY SHALL BE FREE OF KNOTS, SPLITS AND OTHER VISIBLE IMPERFECTIONS, THAT WILL WEAKEN THE POSTS. THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 10 FT. POSTS SHALL BE DRIVEN A MINIMUM 16 INCHES INTO THE GROUND, WHERE POSSIBLE. IF NOT POSSIBLE, THE POSTS SHALL BE ADEQUATELY SECURED TO PREVENT OVERTURNING OF THE FENCE DUE TO SEDIMENT/WATER LOADING.

MAINTENANCE:
SILT FENCE SHOULD BE INSPECTED REGULARLY AND FREQUENTLY AS WELL AS AFTER EACH RAINFALL EVENT TO INSURE THAT THEY ARE INTACT AND THERE ARE NO GAPS AT THE FENCE-GROUND INTERFACE OR TEARS ALONG THE LENGTH OF THE FENCE. IF GAPS OR TEARS ARE FOUND, THEY SHOULD BE REPAIRED OR THE FABRIC REPLACED IMMEDIATELY. ACCUMULATED SEDIMENTS SHOULD BE REMOVED FROM THE FENCE BASE WHEN THE SEDIMENT REACHES ONE-THIRD TO ONE-HALF THE HEIGHT OF THE FENCE. SEDIMENT REMOVAL SHOULD OCCUR MORE FREQUENTLY IF ACCUMULATED SEDIMENT IS CREATING NOTICEABLE STRAIN ON THE FABRIC AND THERE IS THE POSSIBILITY OF THE FENCE FAILING FROM A SUDDEN STORM EVENT. WHEN THE SILT FENCE IS REMOVED, THE ACCUMULATED SEDIMENT SHOULD BE REMOVED.

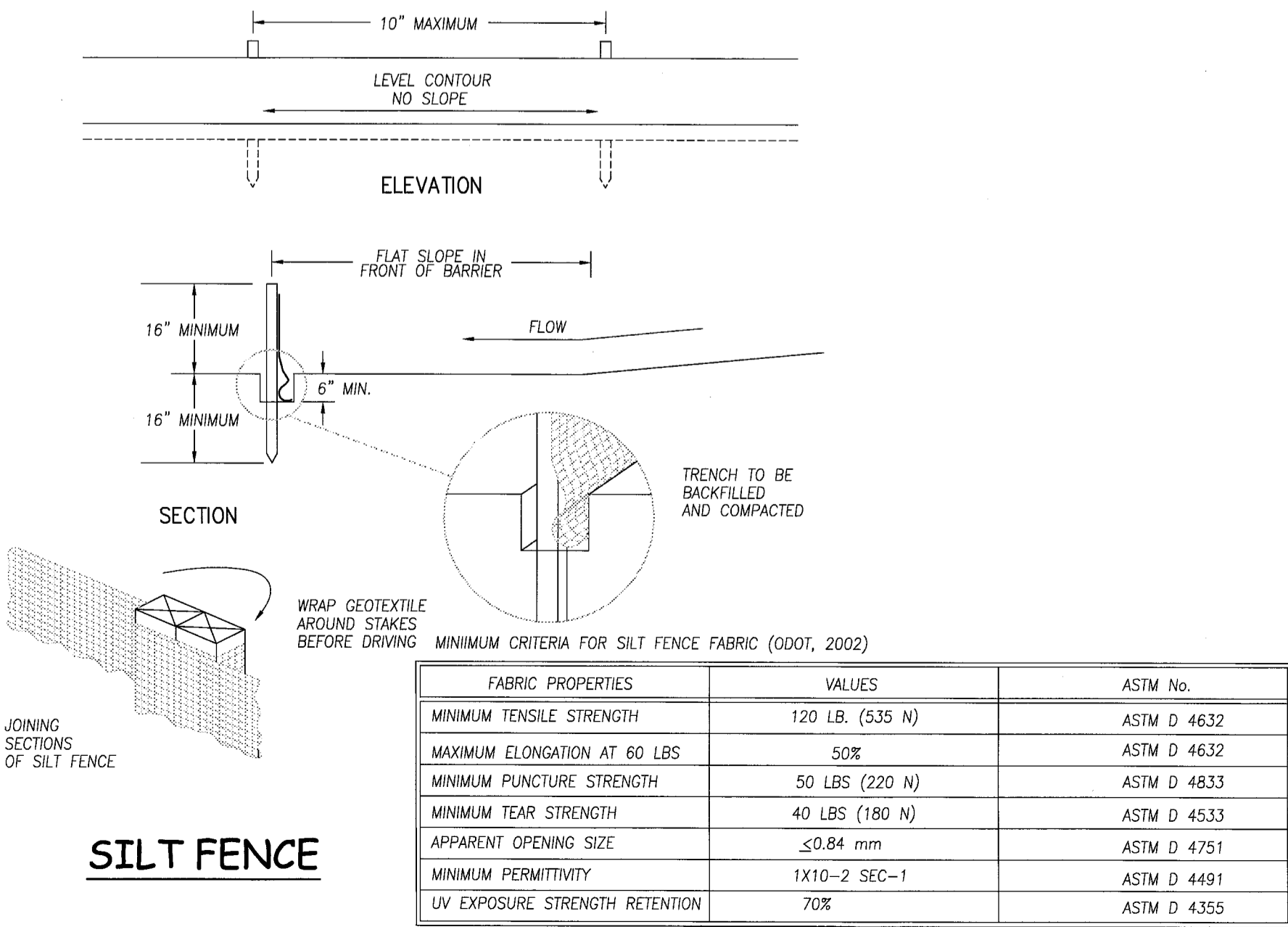
PERMANENT SEEDING			
SEED MIX	SEEDING RATE		NOTES:
	LB./AC.	LB./1,000 SQ FT	
GENERAL USE			
CREEPING RED FESCUE	20-40	1/2 - 1	FOR CLOSE MOWING & FOR WATERWAYS WITH < 2.0 FT/SEC VELOCITY
DOMESTIC RYEGRASS	10-20	1/4 - 1/2	
KENTUCKY BLUEGRASS	10-20	1/2-1	
TALL FESCUE	40-50	1-1 1/4	
DWARF FESCUE	90	2 1/4	
STEEP BANKS OR CUT SLOPES			
TALL FESCUE	40-50	1 1/4	DO NOT SEED LATER THAN AUGUST
CROWN VETCH	10-20	1/4-1/2	
TALL FESCUE	20-30	1/2-3/4	
FLAT PEA	20-25	1/2-3/4	DO NOT SEED LATER THAN AUGUST
TALL FESCUE	20-30	1/2-3/4	
ROAD DITCHES AND SWALES			
TALL FESCUE	40-50	1-1 1/4	
DWARF FESCUE	90	2 1/4	
KENTUCKY BLUEGRASS	5	0.1	
LAWNS			
KENTUCKY BLUEGRASS	100-120	2	FOR SHADED AREAS
PERENNIAL RYEGRASS		2	
KENTUCKY BLUEGRASS	100-120	2	
CREEPING RED FESCUE		1-1/2	
NOTE: OTHER APPROVED SEED SPECIES MAY BE SUBSTITUTED			

- NOTES:**
- 1) SUBSOILER, FLOW, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. (MAXIMUM INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY.) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING SHALL NOT BE DONE ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.
 - 2) THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.
 - 3) TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION.
 - 4) AGRICULTURAL GROUND LIME/STONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 100 POUNDS PER 1,000 SQ. FT. OR 2 TONS PER ACRE.
 - 5) FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. IN PLACE OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AT A RATE OF 25 POUNDS PER 1,000 SQ. FT. OR 1,000 POUNDS PER ACRE OF A 10-10-10 OR 12-12-12 ANALYSES.
 - 6) THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES. ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.
 - 7) SEEDING SHOULD BE DONE MARCH 1 TO MAY 31 OR AUGUST 1 TO SEPTEMBER 30. IF SEEDING OCCURS OUTSIDE OF THE ABOVE-SPECIFIED DATES, ADDITIONAL MULCH AND IRRIGATION MAY BE REQUIRED TO ENSURE A MINIMUM OF 80% GERMINATION. TILLAGE FOR SEEDBED PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING, SEE THE FOLLOWING SECTION ON DORMANT SEEDING.
 - 8) SEEDING SHOULD NOT BE MADE FROM OCTOBER 1 THROUGH NOVEMBER 20. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT PROBABLY WILL NOT BE ABLE TO SURVIVE THE WINTER.
 - 9) THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":
 - FROM OCTOBER 1 THROUGH NOVEMBER 20, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. AFTER NOVEMBER 20 AND BEFORE MARCH 15, BROADCAST THE SELECTED SEED MIXTURE. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.
 - FROM NOVEMBER 20 THROUGH MARCH 15, WHEN SOIL CONDITIONS PERMIT, PREPARE THE SEEDBED, LIME AND FERTILIZE, APPLY THE SELECTED SEED MIXTURE, MULCH AND ANCHOR. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.
 - APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CUTLIPACKER SEEDER, OR HYDRO-SEEDER (SLURRY MAY INCLUDE SEED AND FERTILIZER) ON A FIRM, MOIST SEEDBED.
 - WHERE FEASIBLE, EXCEPT WHEN A CUTLIPACKER TYPE SEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A CUTLIPACKER, ROLLER, OR LIGHT DRAG. ON SLOPING LAND, SEEDING OPERATIONS SHOULD BE ON THE CONTOUR WHERE FEASIBLE.
 - 10) PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH. IRRIGATION SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDD AREAS FROM EXCESSIVE RUNOFF.

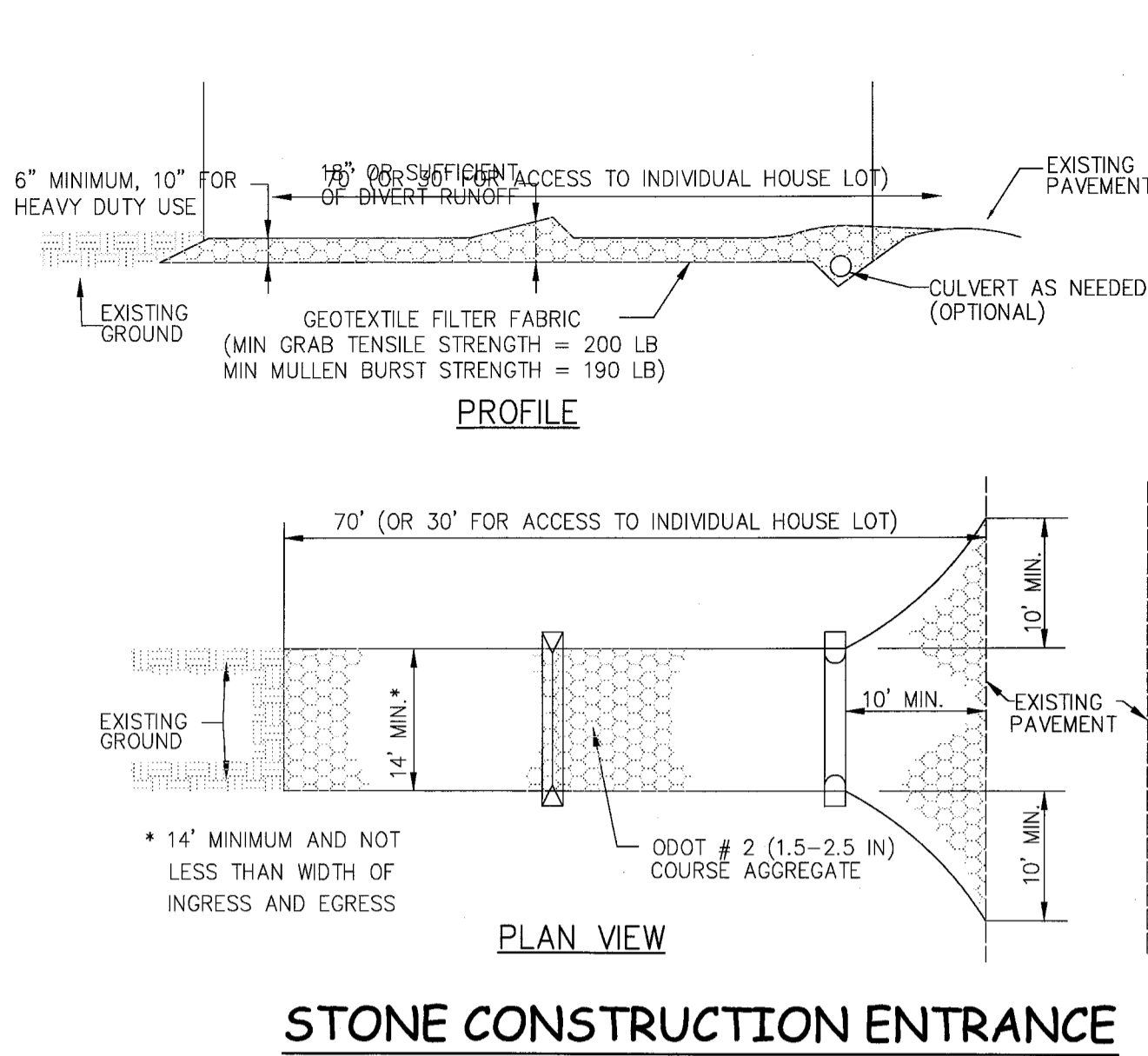
PERMANENT SEEDING

- NOTES:**
CONSTRUCTION SEQUENCING AND DISTURBING ONLY SMALL AREAS AT A TIME CAN GREATLY REDUCE PROBLEMATIC DUST FROM THE SITE. IF LAND MUST BE DISTURBED, ADDITIONAL TEMPORARY STABILIZATION MEASURES SHOULD BE CONSIDERED PRIOR TO DISTURBANCES.
- 1) APPLY TEMPORARY OR PERMANENT SEEDING AND MULCH TO AREAS THAT WILL REMAIN IDLE FOR OVER 21 DAYS. SAVING EXISTING TREES AND LARGE SHRUBS WILL ALSO REDUCE SOIL AND AIR MOVEMENT ACROSS DISTURBED AREAS.
 - 2) SPRAY SITE WITH WATER UNTIL THE SURFACE IS WET BEFORE AND DURING GRADING AND REPEAT AS NEEDED, ESPECIALLY ON HAUL ROADS AND OTHER HEAVY TRAFFIC ROUTES. WATERING SHALL BE DONE AT A RATE THAT PREVENTS DUST BUT DOES NOT CAUSE SOIL EROSION. WETTING AGENTS SHALL BE UTILIZED ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
 - 3) GRADED ROADWAYS AND OTHER SUITABLE AREAS WILL BE STABILIZED USING CRUSHED STONE OR COARSE GRAVEL AS SOON AS PRACTICABLE AFTER REACHING AN INTERIM OR FINAL GRADE. CRUSHED STONE OR COARSE GRAVEL CAN BE USED AS A PERMANENT COVER TO PROVIDE CONTROL OF SOIL EMISSIONS.
 - 4) EXISTING WINDBREAK VEGETATION SHALL BE MARKED AND PRESERVED. SNOW FENCING OR OTHER SUITABLE BARRIER MAY BE PLACED PERPENDICULAR TO PREVAILING AIR CURRENTS AT INTERVALS OF ABOUT 15 TIMES THE BARRIER HEIGHTS TO CONTROL AIR CURRENTS AND BLOWING SOIL.
 - 5) CALCIUM CHLORIDE MAY BE APPLIED BY MECHANICAL SPREADER AS LOOSE, DRY GRANULES OR FLAKES AT A RATE THAT KEEPS THE SURFACE MOIST BUT NOT SO HIGH AS TO CAUSE WATER POLLUTION OR PLANT DAMAGE. APPLICATION RATES SHOULD BE STRICTLY IN ACCORDANCE WITH SUPPLIERS' SPECIFIED RATES.
 - 6) WHEN TEMPORARY DUST CONTROL MEASURES ARE USED; REPETITIVE TREATMENT SHOULD BE APPLIED AS NEED TO ACCOMPLISH CONTROL.
 - 7) PAVED AREAS THAT HAVE ACCUMULATED SEDIMENT FROM CONSTRUCTION SHOULD BE CLEANED DAILY, OR AS NEEDED, UTILIZING A STREET SWEEPER OR BUCKET-TYPE ENDOLOADER OR SCRAPER.

DUST CONTROL



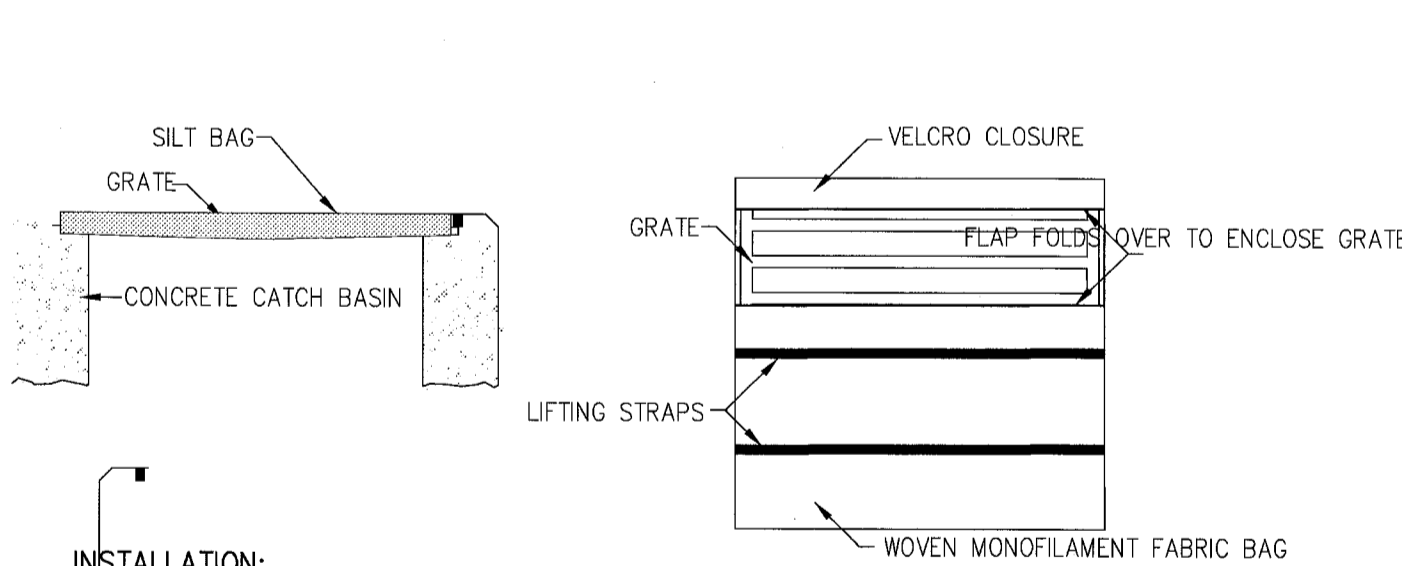
SILT FENCE



- NOTES:**
- 1) INLET PROTECTION SHALL BE CONSTRUCTED EITHER BEFORE UPSLOPE LAND DISTURBANCE BEGINS OR BEFORE THE INLET BECOMES FUNCTIONAL.
 - 2) THE EARTH AROUND THE INLET SHALL BE EXCAVATED COMPLETELY TO A DEPTH AT LEAST 18 INCHES.
 - 3) THE WOODEN FRAME SHALL BE CONSTRUCTED OF 2-INCH BY 4-INCH CONSTRUCTION GRADE LUMBER. THE 2-INCH BY 4-INCH POSTS SHALL BE DRIVEN ONE (1) FOOT INTO THE GROUND AT FOUR CORNERS OF THE INLET AND THE TOP PORTION OF 2-INCH BY 4-INCH FRAME ASSEMBLED USING THE OVERLAP JOINT SHOWN. THE TOP OF THE FRAME SHALL BE AT LEAST 6 INCHES BELOW ADJACENT ROADS IF PONDED WATER WILL POSE A SAFETY HAZARD TO TRAFFIC.
 - 4) WIRE MESH SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT FABRIC WITH WATER FULLY IMPOUNDED AGAINST IT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY TO THE FRAME.
 - 5) GEOTEXTILE MATERIAL SHALL HAVE AN EQUIVALENT OPENING SIZE OF 20-40 SIEVE AND BE RESISTANT TO SUNLIGHT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY. IT SHALL EXTEND FROM THE TOP OF THE FRAME TO 18 INCHES BELOW THE INLET NOTCH ELEVATION. THE GEOTEXTILE SHALL OVERLAP ACROSS ONE SIDE OF THE INLET SO THE ENDS OF THE CLOTH ARE NOT FASTENED TO THE SAME POST.
 - 6) BACKFILL SHALL BE PLACED AROUND THE INLET IN COMPACTED 6 IN. LAYERS UNTIL THE EARTH IS EVEN WITH NOTCH ELEVATION ON ENDS AND TOP ELEVATION ON SIDES.
 - 7) A COMPACTED EARTH DIKE OR A CHECK DAM SHALL BE CONSTRUCTED IN THE DITCH LINE BELOW THE INLET IF THE INLET IS NOT IN A DEPRESSION AND IF RUNOFF BYPASSING THE INLET WILL NOT FLOW TO A SETTLING POND. THE TOP OF EARTH DIKES SHALL BE AT LEAST 6 IN. HIGHER THAN THE TOP OF THE FRAME.

MAINTENANCE:
SILT FENCE SHOULD BE INSPECTED REGULARLY AND FREQUENTLY AS WELL AS AFTER EACH RAINFALL EVENT TO INSURE THAT THEY ARE INTACT AND THERE ARE NO GAPS AT THE FENCE-GROUND INTERFACE OR TEARS ALONG THE LENGTH OF THE FENCE. IF GAPS OR TEARS ARE FOUND, THEY SHOULD BE REPAIRED OR THE FABRIC REPLACED IMMEDIATELY. ACCUMULATED SEDIMENTS SHOULD BE REMOVED FROM THE FENCE BASE WHEN THE SEDIMENT REACHES ONE-THIRD TO ONE-HALF THE HEIGHT OF THE FENCE. SEDIMENT REMOVAL SHOULD OCCUR MORE FREQUENTLY IF ACCUMULATED SEDIMENT IS CREATING NOTICEABLE STRAIN ON THE FABRIC AND THERE IS THE POSSIBILITY OF THE FENCE FAILING FROM A SUDDEN STORM EVENT. WHEN THE SILT FENCE IS REMOVED, THE ACCUMULATED SEDIMENT SHOULD BE REMOVED.

YARD INLET PROTECTION



INSTALLATION:

1. STAND THE GRATE ON END.
2. PLACE THE SILT BAG OVER THE GRATE.
3. ROLL THE GRATE OVER SO THAT THE OPEN END IS UP.
4. PULL UP THE BAG.
5. TUCK THE FLAP IN.
6. PRESS THE VELCRO STRAPS TOGETHER.
7. BE SURE THAT THE END OF THE GRATE IS COMPLETELY COVERED BY THE FLAP OR THE SILT BAG WILL NOT WORK PROPERLY.
8. HOLDING THE HANDLES, CAREFULLY PLACE THE SILT BAG WITH THE GRATE INSERTED INTO THE CATCH BASIN FRAME.

MAINTENANCE:

TO INSURE PROPER OPERATION REMOVE SILT, SEDIMENT, AND DEBRIS FROM THE SURFACE AND THE VICINITY OF THE UNIT WITH A SQUARE POINT SHOVEL OR STIFF BRISTLE BROOM AWAY FROM ENVIRONMENTALLY SENSITIVE AREAS AND WATERWAYS IN MANNER SATISFACTORY TO THE ENGINEER/INSPECTOR. REMOVE FINE MATERIAL FROM INSIDE SILT BAG AS NEEDED. DISPOSE OF SILT BAG NO LONGER IN USE AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY.

INLET INSPECTION:

TO INSPECT INLET, REMOVE SILT BAG WITH GRATE INSIDE, INSPECT CATCH BASIN AND REPLACE SILT BAG BACK INTO GRATE FRAME.

NOTE:

PONDING IS LIKELY IF SEDIMENT IS NOT REMOVED REGULARLY. THE SILT BAG MUST NEVER BE USED WHERE OVERFLOW MAY ENDANGER AN EXPOSED SLOPE.


SILT BAG INLET PROTECTION

2 WORKING DAYS
BEFORE YOU DIG
CALL TOLL FREE 1-800-362-2764
ODOT UTILITIES PROTECTION SERVICE

STORMWATER POLLUTION PREVENTION PLAN FOR:
MASSILLON SENIOR
SWPPP DETAILS

Revisions	Number	Date	Description
1	10.16.09		CHFA 50% Submittal
2	12.23.09		City Comments Addressed
3	01.27.10		City Comments Addressed
4	03.05.10		City Comments Addressed

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mNEFFdesign group
DESIGNING LAND FOR YOUR WORLD
14856 Broadway Avenue, Suite 100-5B • Maple Heights, Ohio 44137
tel: 216.665.8820 • fax: 216.665.8821
www.mneffdesign.com

	
Horizontal Scale	Vertical Scale
None	None
Original Submission	Last Plot Date
Oct 16, 2009	Mar 05, 2010
Drawn By	Checked By
DLN	
Project Number	Field Crew
7426	FS & BH
Sheet	

SW 5

15" DRAIN BASIN

CAST IRON H-20 RATED GRATE
FOR DETAILS SEE PAGE 4B

INLET AND OUTLET
ADAPTORS AVAILABLE
4" THRU 15"

VARIOUS TYPES OF OUTLETS
WITH WATERTIGHT ADAPTORS
FOR:
SDR-35 SEWER
CORRUGATED POLYETHYLENE
SCHEDULE 40 DWV
CORRUGATED PVC
RIBBED PVC

* (1) ADAPTORS CAN BE
MOUNTED ON ANY ANGLE
0° TO 359°. TO DETERMINE MINIMUM
ANGLE BETWEEN ADAPTORS SEE SHEET
#6

15"

37 1/2"

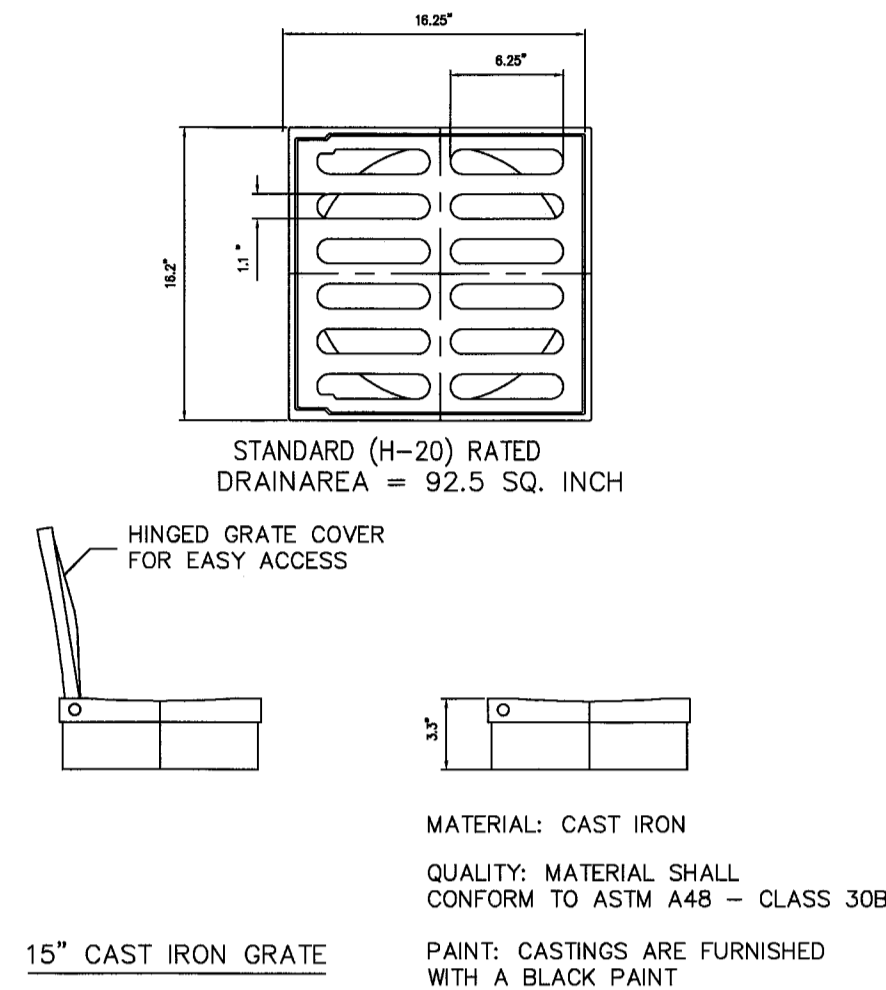
VARIABLE INVERT HEIGHT

4" - 15"

VARIABLE OVERALL
HEIGHT * (2)

6" MINIMUM

* (2) MAXIMUM
RECOMMENDED
OVERALL HEIGHT 10'



24" N-12 ACCESS RISERS

OUTLET PLATE STIFFENER

RIM 938.0

106"

70.66"

RIM 938.0

MATCH TOP STUB INVERT TO TOP CHAMBER INVERT

12" INV 932.07

SEMENT CHAMBER

12"

12" INV 931.84

OUTLET ORIFICE

12"

54"±

3"

24"

12"

8" N-12 STAND PIPE

WELD STAND PIPE TO TOP OF PIPE CHAMBER AND ATTACH STIFFENER PLATE TO REDUCING PLATE (SEE DETAIL)

21.11"

INLET PLATE STIFFENER

1/2" THICK REDUCING PLATE W/ INLET STUB

1/2" THICK SAW TOOTH HOPE WEIR PLATE (SEE DETAIL)

141.33"

212"

236" (1 FULL STICK OF PIPE)

SEMENT WEIR STIFFENERS (OIL SIDE ONLY)

1/2" THICK HOPE INVERTED WEIR PLATE (SEE DETAIL)

0.5" THICK REDUCING PLATE W/ ORIFICE AND OUTLET STUB

MEASURED FROM CHAMBER ID TO ORIFICE INVERT

ADS MODEL #	MAIN PIPE DIA.	INLET STUB DIA.	OUTLET STUB DIA.	ORIFICE DIA.	A	B	C	D
4220WQA15	42"	12"	12"	8.13"	16.1"	29.2"	29.4"	27.2"

0.5" THICK BY 3" WIDE STIFFENER

3.0"

1.5" (TYP)

WELD TO INSIDE PIPE WALL (TYP)

SAW TOOTH DETAIL

1/2" THICK SAW TOOTH HOPE WEIR PLATE IN SEDIMENT CHAMBER

1/2" THICK HOPE INVERTED WEIR PLATE FOR OIL CHAMBER

0.5" THICK BY 3" WIDE STIFFENER

INSIDE CHAMBER WALL

INLET REDUCING PLATE

WELD TO INSIDE PIPE WALL (TYP)

OUTLET REDUCING PLATE

INSIDE CHAMBER WALL

DISPERSION BAFFLE DETAIL (TOP VIEW)

8" N-12 STAND PIPE

21.11"

0.5" THICK REDUCING PLATE

0.5" WELDED STIFFENER PLATE


NOTES:

1. ALL DIMENSIONS ARE NOMINAL
2. ALL FITTING CONNECTIONS WILL BE MADE USING TRANSVERSE JOINT, OR BUTT

1. ALL DIMENSIONS ARE NOMINAL
2. ALL FITTING CONNECTIONS WILL BE MADE USING A STANDARD BELL/BELL OR SPLIT COUPLER

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20' WQU STANDARD FAB DETAIL		
DRAWN BY MGB	APPROVED BY KSK	DRAWING # 20' STD UNIT

REVISIONS	
BY	DATE
KSK	02.17.04
CRM	1.26.09

DWG. SCALE: _____

The image contains two technical drawings of a bypass system, labeled PLAN VIEW and PROFILE VIEW.

PLAN VIEW: This top-down view shows a horizontal N-12 BYPASS PIPE. At the left end is a NYLOPLAST DRAIN BASIN. At the right end is a CATCH BASIN. A 24" INSPECTION RISER (TYP) is shown as a vertical pipe with a grate on top, connected to the bypass pipe. A dashed line indicates the flow direction from left to right.


PROFILE VIEW: This side view shows the vertical profile of the system. The main pipe is labeled 24" N-12 ACCESS RISERS (FIELD EXTEND AS REQUIRED). The pipe has a diameter of 54"±. The profile shows the pipe rising from the left, passing under a grate (938.0), and then rising again to pass over another grate (938.0). The pipe is labeled 15" BYPASS 12" WQU INV 931.84 at the left end and 15" BYPASS 12" WQU INV 932.07 at the right end. The pipe is supported by a series of vertical risers. The profile also shows an ECCENTRIC REDUCING WYE, a SWEEP 90° BEND REQUIRES SERIES 35 GASKET, and an OUTLET ORIFICE # 12" WQU INV 931.84. The total length of the pipe section is 236". The profile view also shows a GRATE 938.04 and a BEGINNING BYPASS INVERT.

ADS MODEL #	MAIN PIPE DIA.	SIEVE SIZE	PARTICLE SIZE (CM)	TREATED FLOW RATE (CFS)	INLET Ø	OUTLET Ø	OUTLET ORIFICE Ø	ELEVATION CHANGE
3620WQA15	42"	140	0.0106	1.5	12"	12"	8.13"	2.8"

1. REFERENCE TECHNICAL NOTE 1.03 FOR ADDITIONAL INFORMATION.
2. ELEVATION CHANGE DENOTES THE ELEVATION DROP FROM INVERT OF BY-PASS AT INLET TO INVERT OF BY-PASS AT OUTLET.

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3620WQA15		
DRAWN BY JAR	4.24.08	APPROVED BY DRAWING #

REVISIONS	
BY	DATE

DWG. SCALE: 1" = 1' 0"

Revisions		
Number	Date	Description
1	10.16.09	OHFA 50% Submittal
2	12.23.09	City Comments Addressed
3	01.27.10	City Comments Addressed
4	03.05.10	City Comments Addressed

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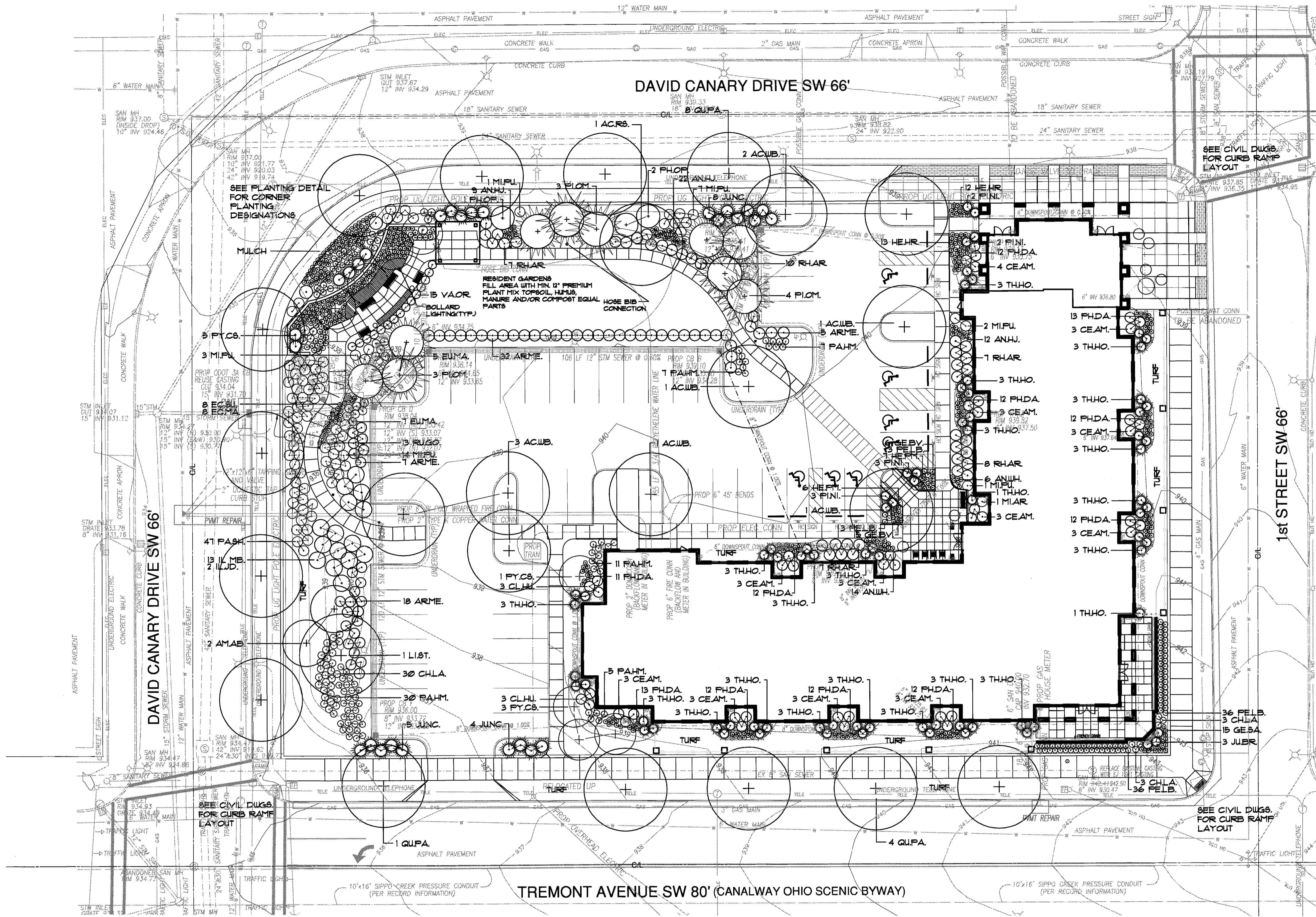
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Horizontal Scale None	Vertical Scale None
Original Submission Oct 16, 2009	Last Plot Date Mar 05, 2010
Drawn By DLN	Checked By
Project Number 7426	Field Crew FS & BH

SW 6



SITE PLANT KEY	
SYMBOL	SCIENTIFIC NAME
DECIDUOUS TREES	
ACRS.	ACER RUBRUM 'RED SUNSET'
ACUB.	ACER SACCHARUM 'WRIGHT BROTHERS'
LI.ST.	LIQUIDAMBAR STYRACIFLUA
QUFA.	QUERCUS FALUSTRIS
ORNAMENTAL TREES	
AMAB.	AMELANCHIER X. GRANDIFLORA 'AUTUMN BRILLIANCE'
PY.CS.	PYRUS CALLERYANA 'CLEVELAND SELECT'
CONIFER TREES	
PIOM.	PICEA OMORICA
SHRUBS	
ARME.	ARONIA MELANOCARPA 'AUTUMN MAGIC'
CEAM.	CEANOTHUS AMERICANUS
CLHU.	CLETHRA ALNIFOLIA 'HUMMINGBIRD'
HY.AN.	HYDRANGEA ARBORESCENS 'ANNABELLE'
ILJD.	ILEX VERTICILLATA 'JIM DANDY'
ILMB.	ILEX VERTICILLATA 'MARYLAND BEAUTY'
JUKC.	JUNIPERUS CHINENSIS 'KALLAY'S COMPACT'
JUNC.	JUNIPERUS CHINENSIS 'NICKS COMPACT'
JUBR.	JUNIPERUS SABINA 'BROADMOOR'
PHOP.	PHYSCARPUS OULIFOLIUS
PINI.	PICEA ABIES 'NIDIFORMIS'
RHAR.	RHUS AROMATICA 'GRO-LOW'
THHO.	THUJA OCCIDENTALIS 'HOLMSTRUP'
VAOR.	VACCINIUM X. 'ORNABLU'
GRASSES AND PERENNIALS	
ANHU.	ANEMONE X. HYBRIDA 'HONORINE JOBERT'
ANWH.	ANEMONE X. 'WHIRLIND'
CETO.	CERASTIUM TOMENTOSUM
CHLA.	CHASMANTHIUM LATIFOLIUM
ECKK.	ECHINACEA PURPUREA 'KIM'S KNEE HIGH'
ECMA.	ECHINACEA PURPUREA 'MAGNUS'
EC.SU.	ECHINACEA PURPUREA 'SUNDOWN'
EUMA.	EUPATORIUM MACULATUM
FRHO.	FRAGARIA ANANASSA 'HONEYE'
GE.BV.	GERANIUM MACRORRHIZUM 'BEVAN'S VARIETY'
GE.SA.	GERANIUM SANGUINEUM 'MAX FREI'
HEHR.	HEMEROCALLIS 'HAPPY RETURNS'
HEPM.	HEMEROCALLIS 'PARDON ME'
HERC.	HEMEROCALLIS 'ROCKET CITY'
HOSS.	HOSTA 'SUM AND SUBSTANCE'
LE.AL.	LEUCANTHEMUM X. SUPERBUM 'ALASKA'
LI.SP.	LIASSTRIS SPICATA
MIFU.	MISCANTHUS SINENSIS PURPUREA
MIFU.	MISCANTHUS SINENSIS PURPUREA 'AUTUMN RED'
MONA.	MONARDA DIDYMA 'PETITE DELIGHT'
PAHM.	PANICUM VIRGATUM 'HEAVY METAL'
FASH.	PANICUM VIRGATUM 'SHENANDOAH'
FEAL.	FENISSETUM ALOPECUROIDES
FELB.	FENISSETUM ALOPECUROIDES 'LITTLE BUNNY'
FEHR.	FENISTEMON DIGITALIS 'HUSKER RED'
RHDA.	RHODOLPHIA 'DANIELLE'
RUGO.	RUDBECKIA FULGIDA 'GOLDSTURM'
SAOC.	SAPONARIA OCTYMOIDES

Peggy A. Brown
landscape architect

3293 Clarendon Road
Cleveland Heights, Ohio 44118
216.932.1231 216.932.6231 (fax)
pabla@aol.com

the
NRP
group LLC

5309 TRANSPORTATION BOULEVARD
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216.475.8900 216.475.9300 (fax)

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Massillon, Ohio

PLANTING
PLAN

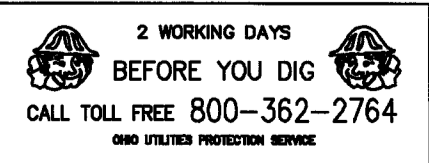
SEE SHEET L2 FOR NW CORNER PLANTING DETAIL,
STANDARD PLANTING DETAILS, PLANT LIST AND
NOTES

Date	Notes
10-26-09	REVIEW
12-21-09	REVIEW
01-07-10	REVIEW
01-25-10	REVIEW
02-01-10	REVIEW
03-05-10	REVIEW

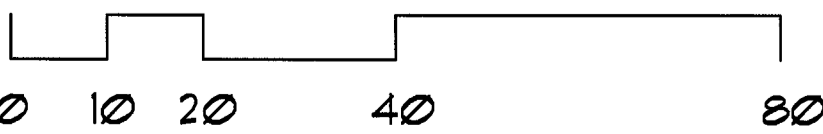
Job No.:
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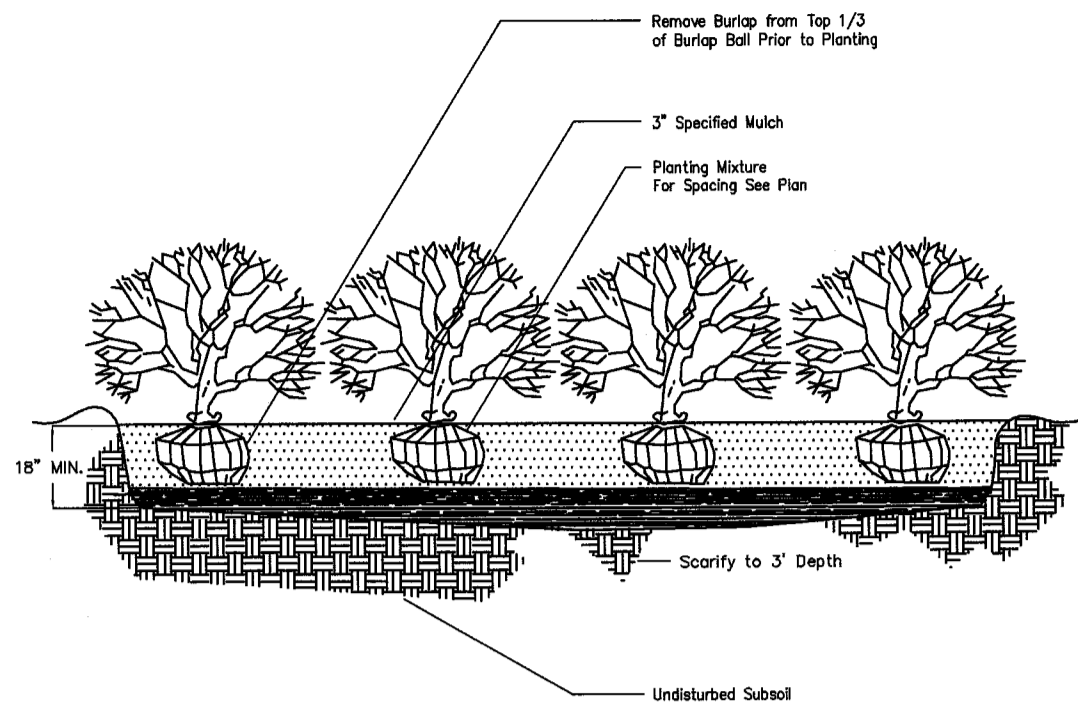
PLANTING
PLAN

L1



SCALE: 1" = 20'-0"

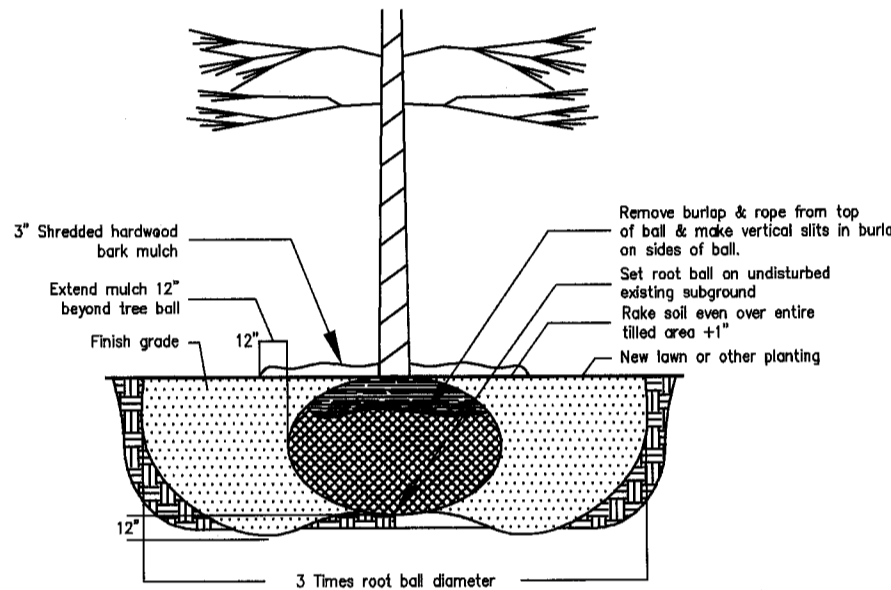




NOTE:
Set all plants so that they bear the same relation to the finish grade as they did to the natural grade at the plant nursery after settlement of backfill. Install backfill 1" higher than surrounding grade to allow for settlement.

SHRUB & PERENNIAL PLANTING

SECTION NO SCALE

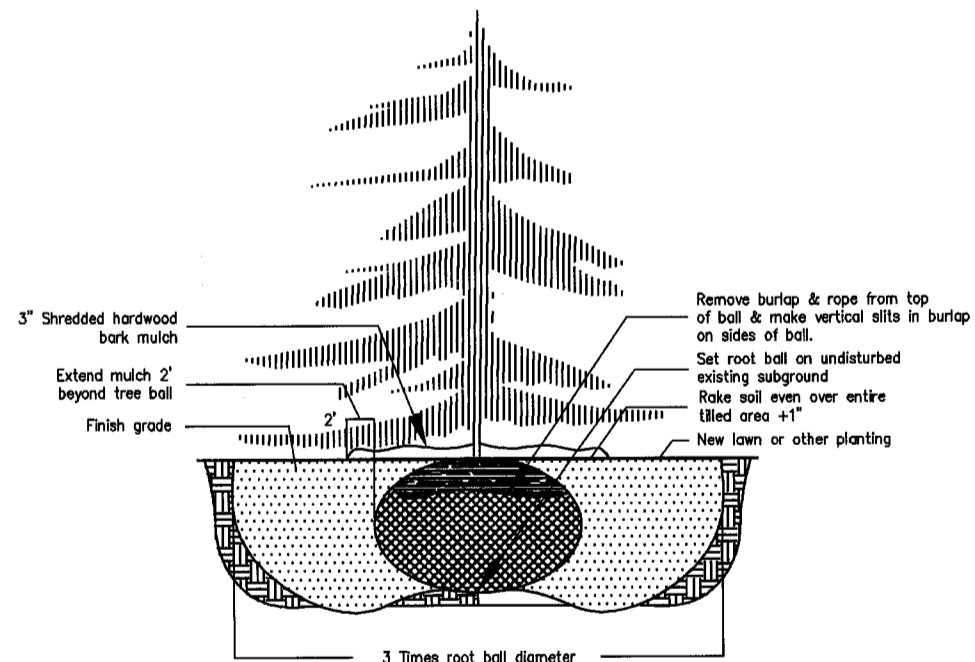


Thoroughly fill area equal to 3 times diameter of tree ball and to the depth of the tree ball. Prior to filling remove any existing lawn or other vegetation & uniformly spread a 2" layer of well decomposed leaf mulch or other approved compost matter over entire area & fill into entire area. Backfill around tree with filled soil and "water in" backfill in layers to settle backfill.

NOTE:
Set all plants so that they bear the same relation to the finish grade as they did to the natural grade at the plant nursery after settlement of backfill. Install backfill 1" higher than surrounding grade to allow for settlement.

TREE PLANTING

SECTION NO SCALE



Thoroughly fill area equal to 3 times diameter of tree ball and to the depth of the tree ball. Prior to filling remove any existing lawn or other vegetation & uniformly spread a 2" layer of well decomposed leaf mulch or other approved compost matter over entire area & fill into entire area. Backfill around tree with filled soil and "water in" backfill in layers to settle backfill.

NOTE:
Set all plants so that they bear the same relation to the finish grade as they did to the natural grade at the plant nursery after settlement of backfill. Install backfill 1" higher than surrounding grade to allow for settlement.

EVERGREEN PLANTING

SECTION NO SCALE

NOTES

Scope of work
1. Includes but is not limited to removal of weeds, removal of construction debris, installation of topsoil/plant bed mixture, installation of plants, mulching, irrigation system installation, spreading topsoil and grading lawn. Establishment of lawn, clean-up, and guarantee, and regular maintenance during construction and the establishment period.

2. Base information by mNEFFdesigngroup, 14885 Broadway Avenue, Suite 100-2B Cleveland, Ohio 4413.

3. Architectural information by RDL Architects, Inc., 16102 Chagrin Boulevard, Suite 200, Shaker Heights, Ohio 44120.

3. Contractor to verify existing conditions of the field conditions and notify the Owner or Landscape Architect of any discrepancies.

4. Contractor to locate all utilities prior to onset of work.

5. All work to be of the highest quality and completed in a proper work-man like manner in accordance with the accepted practices of the American Association of Landscape Contractors.

6. Plants to be laid out in the plant beds for layout approval by the Landscape Architect prior to installation.

7. Do not make substitutions. If specified landscape material is not obtainable, contact Landscape Architect for acceptable alternative.

8. All plant material must be from a nursery source with a hardiness zone similar to the project site.

9. Size and quantity of plant material listed in the plant list are minimum sizes and quantities.

10. The Contractor is responsible to verify all quantities shown on these plans.

11. Lawns shall have a minimum topsoil depth of 4".

12. Soil mixture for backfilling of plant beds shall be equal parts of clean topsoil, humus, and cow manure.

13. Plant beds to receive 3" double shredded hardwood bark mulch. Contractor to take care to keep mulch away from crowns and root flares of all plants.

14. All areas disturbed by construction and not designated as plant bed shall be seeded as lawn.

15. The top 8" of soil shall be free of rocks, concrete and foreign material larger than 2" in diameter. Road base material shall not be present in the top 24" of soil. Any soil mixed with road base shall be removed and disposed of off-site.

16. Final grades shall be smooth and even. Concentrated flows of water shall not drain over a sidewalk. Landscape materials shall not block or interfere with the free flow of drainage water. Notify Landscape Architect if this appears to be unavoidable. All grades shall slope at a minimum 2% grade away from building foundations and footing unless otherwise noted. No standing water will be permitted.

17. The burden of proof of soil amendment installation rests with the Contractor. Soil test may be required at the Contractor's expense in order to confirm amendment installation.

18. Do not prune trees or other plant material unless directed by the Landscape Architect. Trees or shrubs that have been recently pruned or cut will not be acceptable.

19. Trees shall not be planted within 4' of buried utility lines. Relocated trees slightly. If not possible, notify Landscape Architect.

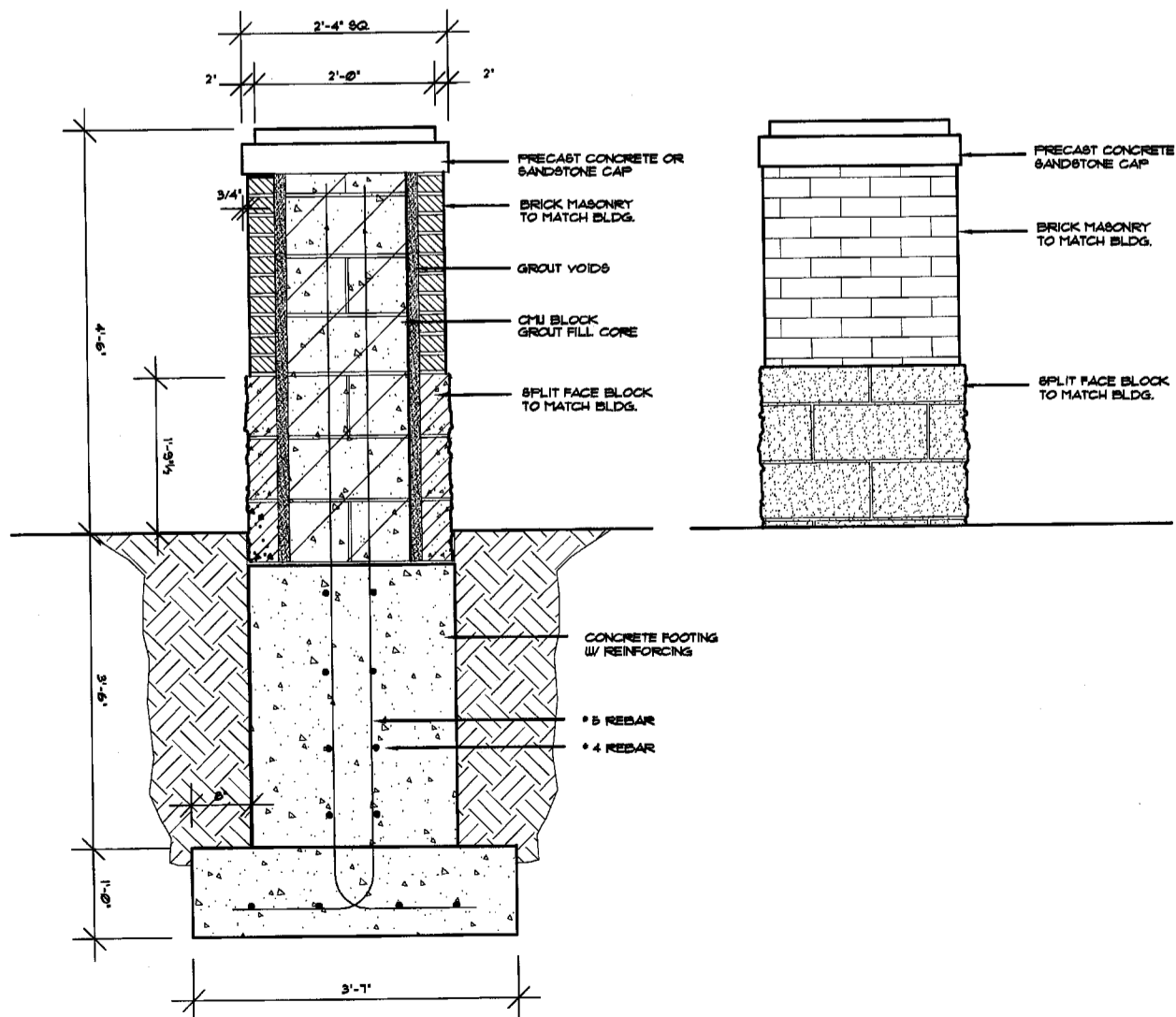
20. Install 6 21 gram plant tablets at each tree and 2 21 gram plant tablets at each shrub. Use agriform or best-tabs tablets.

21. Plant pits for trees shall be 3 times the width of the root ball. Bottom of tree pit to be unexcavated to form a pedestal for the tree to rest upon.

22. Apply a pre-emergent herbicide formulated for 6 month weed control to all shrub/groundcover areas prior to installation of mulch to the soil surface.

23. All trees without exposed root flares prior to and/or after installation will be rejected.

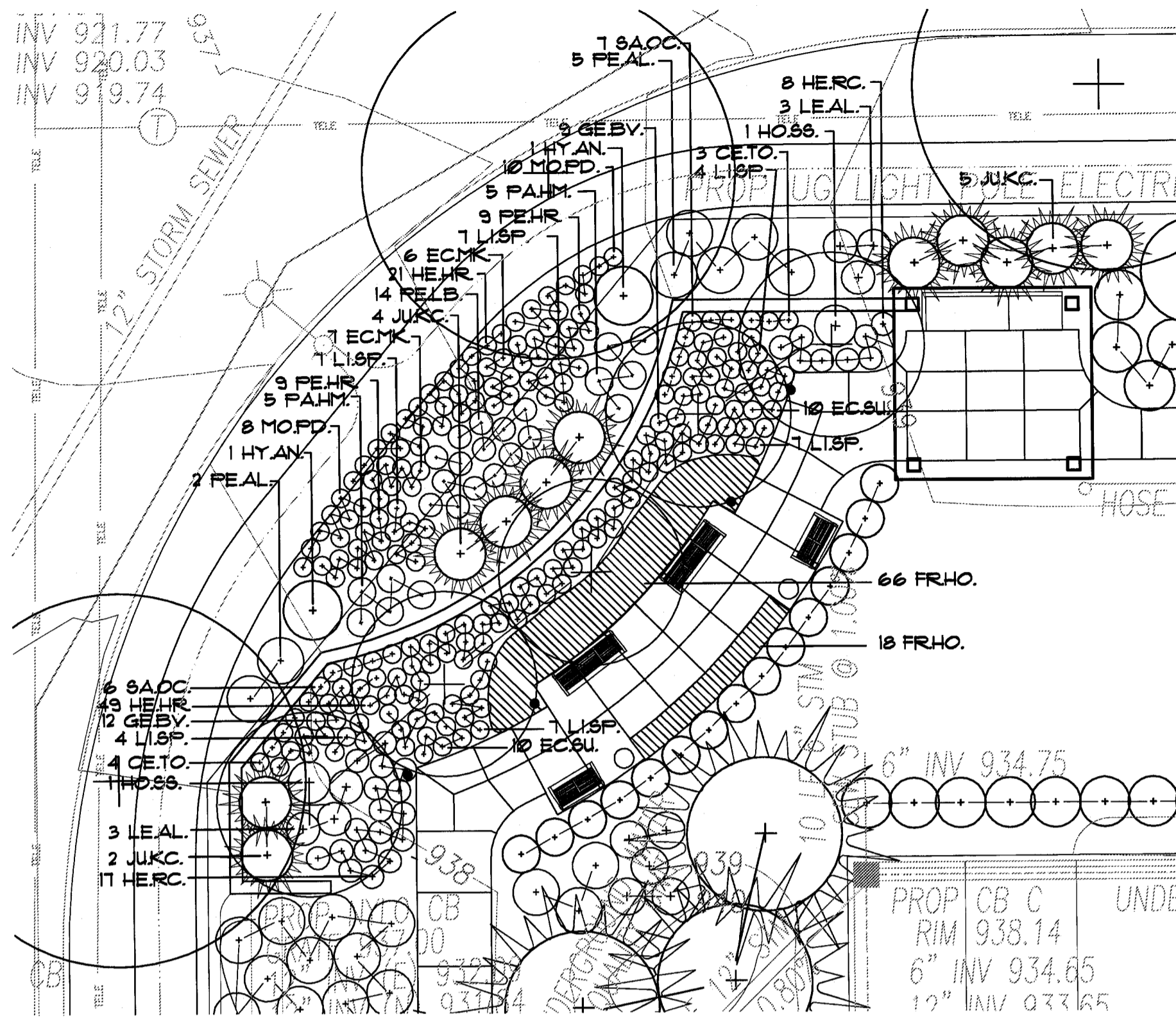
24. Seed to be used for lawns shall be drought tolerant.



PERIMETER FENCE COLUMN

SECTION/ELEVATION

1/2" = 1'-0"



NORTHWEST CORNER PLANTING

PLAN

1" = 10'-0"

SITE PLANT LIST

SYMBOL	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARK	NATIVE
DECIDUOUS TREES						
ACRS.	1	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	25' C.	B4B	Y
ACUB.	9	ACER SACCHARUM 'WRIGHT BROTHERS'	WRIGHT BROTHERS SUGAR MAPLE	25' C.	B4B	Y
LIST.	1	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	25' C.	B4B	Y
QUFA.	16	QUERCUS PALUSTRIS	PIN OAK	25' C.	B4B	Y
ORNAMENTAL TREES						
AMAB.	2	AMELANCHIER X. GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	25' C.	B4B/TREE FORM	Y
PTCS.	9	PYRUS CALLERYANA 'CLEVELAND SELECT'	CLEVELAND SELECT PEAR	2' C.	B4B	N
CONIFER TREES						
PLOM.	10	PICEA OMORICA	SERBIAN SPRUCE	6'	B4B	N
SHRUBS						
ARME.	62	ARONIA MELANOCARPA 'AUTUMN MAGIC'	AUTUMN MAGIC BLACK CHOKEBERRY	NO. 1	CONT.	Y
CEAM.	31	CEANOTHUS AMERICANUS	NEW JERSEY TEA	18'	CONT.	Y
CLHU.	6	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	HUMMINGBIRD SUMMERSWEET	18'	CONT.	Y
HYAN.	2	HYDRANGEA ARBORESCENS 'ANNABELLE'	ANNABELLE HYDRANGEA	30'	CONT.	Y
ILJD.	2	ILEX VERTICILLATA 'JIM DANDY'	JIM DANDY WINTERBERRY	24'	CONT.	Y
ILMB.	13	ILEX VERTICILLATA 'MARYLAND BEAUTY'	MARYLAND BEAUTY WINTERBERRY	24'	CONT.	Y
JUKC.	17	JUNIPERUS CHINENSIS 'KALLAY'S COMPACT'	KALLAY'S COMPACT JUNIFER	24'	B4B	N
JUNC.	17	JUNIPERUS CHINENSIS 'NICKS COMPACT'	NICKS COMPACT JUNIFER	24'	B4B	N
JUBR.	3	JUNIPERUS SABINA 'BROADMOOR'	BROADMOOR JUNIFER	18'	CONT.	N
PHOP.	3	PHYSOCARPUS OPULIFOLIUS	COMMON NINEBARK	36'	CONT.	Y
PINI.	10	PICEA ABIES 'NIDIFORMIS'	BIRD'S NEST SPRUCE	24'	B4B	N
RHAR.	38	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	18'	CONT.	Y
THJO.	62	THUJA OCCIDENTALIS 'HOLMSTRUP'	HOLMSTRUP ARBORVITAE	5'	B4B	Y
VAOR.	15	VACCINIUM X. ORNABLU'	ORNABLU BLUEBERRY	18'	CONT.	Y
GRASSES AND PERENNIALS						
ANHU.	43	ANEMONE X HYBRIDA 'HONORINE JOBERT'	HONORINE JOBERT WINDFLOWER	NO. 2	CONT.	N
ANUH.	20	ANEMONE X. 'WHIRLWIND'	WHIRLWIND WINDFLOWER	NO. 1	CONT.	N
CETO.	1	CERASTIUM TOMENTOSUM	SNOW-IN-SUMMER	NO. 1	CONT.	N
CHLA.	36	CHASMANTHIUM LATIFOLIUM	NORTHERN SEA OATS	NO. 2	CONT.	Y
ECKK.	13	ECHINACEA PURPUREA 'KIM'S KNEE HIGH'	KIM'S KNEE HIGH CONEFLOWER	NO. 2	CONT.	Y
ECMA.	8	ECHINACEA PURPUREA 'MAGNUS'	MAGNUS CONEFLOWER	NO. 2	CONT.	Y
ECBU.	27	ECHINACEA PURPUREA 'SUNDOWN'	SUNDOWN CONEFLOWER	NO. 2	CONT.	Y
EUMA.	12	EUPATORIUM MACULATUM	JOE-PYE WEED	NO. 2	CONT.	Y
FRHO.	84	FRAGARIA ANANASSA 'HONEYE'	HONEYE STRAWBERRY	NO. 2	PLANT: 18' OC.	N
GEBV.	32	GERANIUM MACRORRHIZUM 'BEVAN'S VARIETY'	BEVAN'S VARIETY GERANIUM	NO. 2	CONT.	N
GESA.	15	GERANIUM SANGUINEUM 'MAX FREI'	MAX FREI BLOODY CRANESBILL	NO. 2	CONT.	N
HEHR.	95	HEMEROCALLIS 'HAPPY RETURNS'	HAPPY RETURNS DAYLILY	NO. 2	CONT.	N
HEPM.	13	HEMEROCALLIS 'PARDON ME'	PARDON ME DAYLILY	NO. 2	CONT.	N
HERC.	25	HEMEROCALLIS 'ROCKET CITY'	ROCKET CITY DAYLILY	NO. 2	CONT.	N
HOSS.	2	HOSTA 'SUM AND SUBSTANCE'	SUM AND SUBSTANCE HOSTA	NO. 2	CONT.	N
LEAL.	6	LEUCANTHEMUM X. SUPERBUM 'ALASKA'	ALASKA SHASTA DAISY	NO. 2	CONT.	N
LI8P.	36	LIASIRIS EPICATA	GAYFEATHER	NO. 2	CONT.	Y
MIFU.	30	MISCANTHUS SINENSIS PURPUREA	FLAME GRASS	NO. 2	CONT.	N
MILAR.	1	MISCANTHUS SINENSIS PURPUREA 'AUTUMN RED'	AUTUMN RED MAIDEN GRASS	NO. 2	CONT.	N
MOFD.	18	MONARDA DIDYMA 'PETITE DELIGHT'	PETITE DELIGHT BEEBALM	NO. 2	CONT.	Y
PAHM.	70	PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCH GRASS	NO. 2	CONT.	Y
PASH.	41	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH RED SWITCH GRASS	NO. 2	CONT.	Y
PEAL.	7	PENNISETUM ALOPECUROIDES	FOUNTAIN GRASS	NO. 2	CONT.	N
PELB.	92	PENNISETUM ALOPECUROIDES 'LITTLE BUNNY'	LITTLE BUNNY FOUNTAIN GRASS	NO. 2	CONT.	N
PEHR.	19	PENSTEMON DIGITALIS 'HUSKER RED'	HUSKER RED PENSTEMON	NO. 2	CONT.	Y
PHDA.	133	PHLOX PANICULATA 'DANIELLE'	DANIELLE GARDEN PHLOX	NO. 2	CONT.	Y
RUGO.	13	RUDBECKIA FULGIDA 'GOLDSTURM'	GOLDSTURM BLACK-EYED SUSAN	NO. 2	CONT.	Y
SAOC.	13	SAFONARIA OCTYMOIDES	ROCK SOAPWORT	NO. 1	CONT.	N

1210 PIECES
688 PIECES NATIVE MATERIAL
51% NATIVE PLANT MATERIAL

Peggy A. Brown landscape architect

3293 Clarendon Road
Cleveland Heights, Ohio 44118
216.932.1231 216.932.6231 (fax)
pabla@aol.com

the NRP group LLC

5309 TRANSPORTATION BOULEVARD
CLEVELAND, OHIO 44125
216.475.8900 216.475.9300 (fax)

Massillon Senior Housing

David Canary Drive
Massillon, Ohio

PLANTING PLAN

Date	Notes
10-26-09	REVIEW
12-21-09	REVIEW
01-07-10	REVIEW
01-25-10	REVIEW
02-01-10	REVIEW
02-05-10	REVIEW

Job No.:
File:

PLANTING PLAN

L2