

LOCATION MAP

STATE OF OHIO, DELAWARE COUNTY
DELAWARE COUNTY ENGINEER

INDEX OF SHEETS

TITLE SHEET	1
DETAILS & NOTES	2
MAIN	3
CROSS-SECTIONS	4
EASEMENTS	5

RADNOR #2015-1
DRAINAGE IMPROVEMENT PROJECT

DELAWARE COUNTY
RADNOR TOWNSHIP

ESTIMATED QUANTITIES			
RADNOR #2015-1 Main			
Item	Description	Quantity	Unit
NRCS 326	Clearing & Snagging	LUMP	N/A
NRCS 582	Open Channel Construction	545	Lineal Feet
NRCS 486	Lined Waterway - Rock Channel	75	Lineal Feet
ODOT 202	Tile Removal, Disposal in Place	400	Lineal Feet
NRCS 605	15" Pipe, Perforated (ODOT 707.33)	325	Lineal Feet
NRCS 606	15" Pipe, Non-Perforated (ODOT 707.33)	700	Lineal Feet
NRCS 606	Tile Inspection Wells	3	Each
NRCS 608	Surface Drain - Swale	415	Lineal Feet
ODOT 659	Seeding & Mulching	5250	Square Yards

PROJECT DESCRIPTION

This project will consist of the improvement of surface drainage, the installation of subsurface drain, the destruction of existing subsurface drain tile, and the creation of permanent and temporary easements.

This project/improvement is being done pursuant to Ohio Revised Code Sections 6131 and 6137.

2019 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement. English units shall govern. Where noted, specifications of the USDA Natural Resources Conservation Service shall supplement the ODOT specifications.

BENCHMARK DESCRIPTION

BM# 1
The station is a nail hammered into a utility pole next to the driveway of Lot #6. Utility pole is #30048.

Elevation: 954.80'
Northing: 235522.192
Easting: 1787638.675

(Coordinates are NAD1983 Ohio State Plane North)



UNDERGROUND UTILITIES

TWO WORKING DAYS BEFORE YOU DIG

CALL 1-800-362-2764 (TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS MUST BE CALLED DIRECTLY

PLAN JOINTLY PREPARED BY:

DELAWARE SOIL AND WATER CONSERVATION DISTRICT
557A SUNBURY RD
DELAWARE, OHIO 43015
PHONE: (740)368-1921 EXT.4 FAX: (740)369-8321

DELAWARE COUNTY ENGINEER'S OFFICE
50 CHANNING STREET
DELAWARE, OHIO 43015
PHONE:(740) 833-2400 FAX: (740)833-2399

CONSTRUCTION & MATERIAL SPECIFICATIONS				SUPPLEMENTAL SPECIFICATIONS
OHIO DEPARTMENT OF TRANSPORTATION		USDA NATURAL RESOURCES CONSERVATION SERVICE		
DELAWARE COUNTY ENGINEER		CONSTRUCTION		
202	Tile Destruction in Place, Tile Removal	326	Clearing & Snagging	
611	Pipe Culverts, Sewers, Drains, & Drainage Structures	484	Mulching	
659	Seeding & Mulching	486	Lined Waterway	SPECIAL PROVISIONS
707	Steel, Aluminum, and Plastic Pipe	582	Open Channel Construction	
		606	Subsurface Drain	
		610	Surface Drain	Tile Connection

Radnor #2015-1
DRAINAGE IMPROVEMENT PROJECT

DELAWARE COUNTY ENGINEER
DELAWARE COUNTY, OH

APPROVED *Ch. Bannan*
DATE 2-14-22 COUNTY ENGINEER

APPROVED _____
DATE _____ COUNTY COMMISSIONER

APPROVED _____
DATE _____ COUNTY COMMISSIONER

APPROVED _____
DATE _____ COUNTY COMMISSIONER

DESIGNED D.J.B. 01/19 CHECKED _____
DRAWN D.J.B. 01/19 REVIEWED _____

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT

NONE

RADNOR #2015-1

1
5

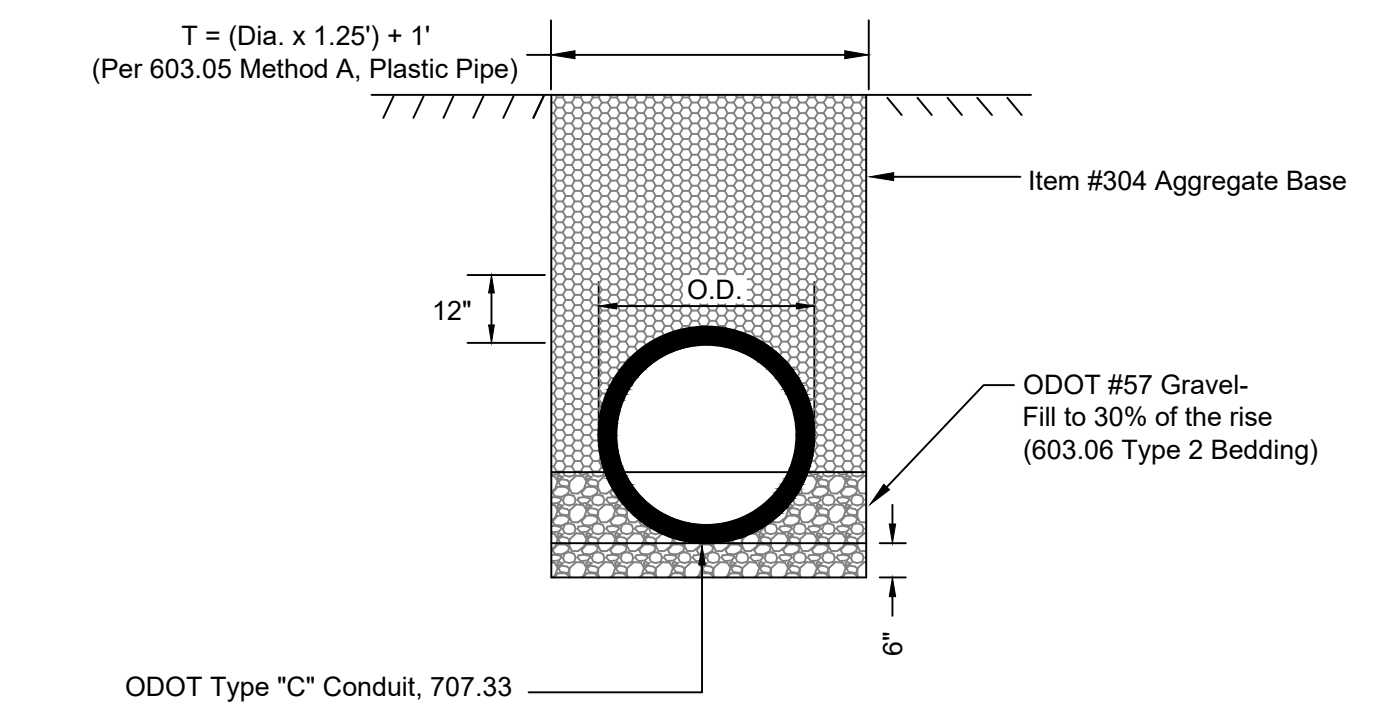
DETAILS & NOTES

GENERAL CONSTRUCTION NOTES

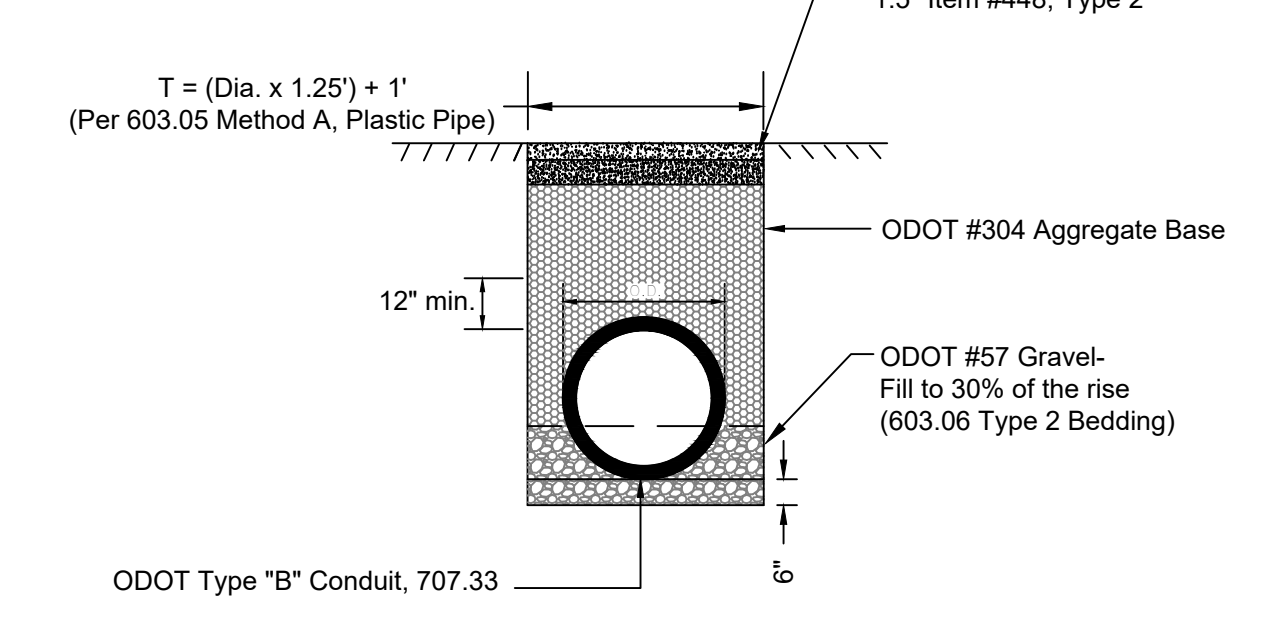
- The construction right-of-way for this project will be 75' right and left of the project centerline unless otherwise marked by the Construction Inspector. Certain items of work may require an extended right-of-way in order to properly complete them. This work should not be done without prior consent of the construction inspector, and any consent given will be specific to a particular item of work. Additional right-of-way for construction access may be identified and approved by the construction inspector as deemed necessary for the completion of the project. All areas disturbed by the construction activities which are outside of the critical path including but not limited to area used for staging, stockpiling of materials, and access will be cleaned and returned to its pre-construction state at the sole responsibility of the contractor as per the requirements of ODOT CMS 104.04.
- The contractor will be responsible for ensuring that all relevant OSHA regulations are met prior to beginning any construction activities.
- Temporary easements for construction access may be identified and approved by the construction inspector as deemed necessary for the completion of the project. Any access easement not connected to the work limits of the project will be returned to its pre-construction state at the sole responsibility of the contractor.
- All ground disturbed by excavation shall be returned to its pre-construction vegetative state and grade unless otherwise directed by the plans and/or the construction inspector.
- Spoil from excavation of the surface drain (NRCS #608) and open channel (NRCS #582) construction shall be exported from the site at the expense of the contractor. Payment for spoil and debris disposal will be considered as included in payment for NRCS #608 and NRCS #582 items. The contractor is free to negotiate with landowners to dispose of spoil and debris materials on-site provided that any disposal site is outside of the work limits for this project. Delaware County will not be considered party to any such agreements made between the contractor and landowners.
- Unless otherwise noted on these plans or instructed by the construction inspector, debris from clearing and snagging within the typical cross sections is to be disposed of off-site by the contractor unless permission to place brush and logs adjacent to the construction right-of-way is granted by the landowners. Payment for hauling and disposal shall be considered part of payment for NRCS #326-Clearing and Snagging. For the purposes of on-site disposal, a log will be defined as "a section of a tree bole (the main trunk of the tree) at least 8 feet long, not containing a fork, sufficiently straight and sound enough to yield at least an 8-foot board. Anything not considered a log by the above definition will be considered brush.
- Pipe quantities listed on the Plan and Profile views represent cumulative quantities for both perforated and non-perforated pipe. The quantity table shall be the reference for the specific amounts of perforated and non-perforated pipe. The applicable specification and the instructions of the construction inspector will govern the placement of each type of pipe. All lineal quantities of pipe shall be considered to be inclusive of all necessary elbows, couplers, and other fittings unless otherwise stated by these plans and/or the bid documents.
- All lateral tile cut by the installation of the new tile shall be reconnected to the new tile at the point where they are cut or collected with a submain (size to be determined) and outletted into the new tile at the next downstream breather as specified by the construction inspector and per the requirements of NRCS #606-Subsurface Drain. Any connections made to any tile included on the Drainage Maintenance Program after completion of the project will require the approval of the Drainage Maintenance Department.
- Seeding and Mulching will be done as per the specifications of ODOT #659 with the following stipulations/exceptions:
 - Seed mixture to be used will be Class-Type #1.
 - Soil testing will not be required.
 - Liming will not be required.
 - Compost will not be required.
 - The use of straw mulch will be acceptable for the entire project.
 - Watering will not be required.
 - Mulch anchoring will not be required except where specified.
- Linear alignments of all surface and subsurface features may be modified to fit site specific conditions at the discretion of the construction inspector.
- The contractor shall contact the Delaware County Engineer's Office a minimum of seven (7) working days prior to beginning any work within the road right-of-way. It will be the sole responsibility of the contractor to secure any permits necessary for work within the road right-of-way.
- All trees to be saved will be marked prior to the start of construction by the construction inspector. Markings will be done in the manner requested by the contractor. Unless specifically designated as "Save" or "Do not disturb" in the plans or by the construction inspector, remove all trees and stumps within the cross section under the lump sum bid for NRCS Item #326-Clearing and Snagging. Trees marked to be saved shall be protected with protective cover such as filter fabric or other suitable material. Replacement of any tree damaged or removed that was otherwise marked to be saved will be the responsibility of the contractor.
- Scale bars as shown on the Plan Views shall be considered to be accurate for surveyed features including, but not necessarily limited to, project centerline, tile lines, and benchmark locations. Property lines, drive centerlines, building footprints, and road centerlines as shown on the Plan Views were derived from other sources and are shown for general reference only and should not be used to scale the location of any constructed feature.
- Excavation will may be required to verify design elevations including, but not limited to, existing subsurface drain inverts. These excavations will be considered incidental to the overall construction of the project per ODOT CMS 105.02.

SUBSURFACE DRAIN (NRCS #606)

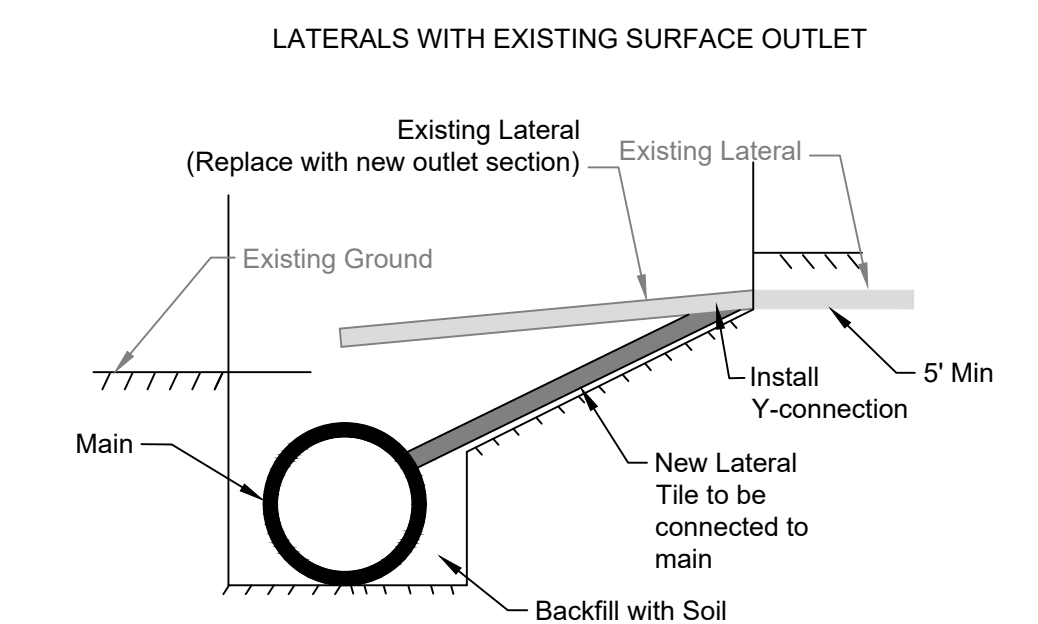
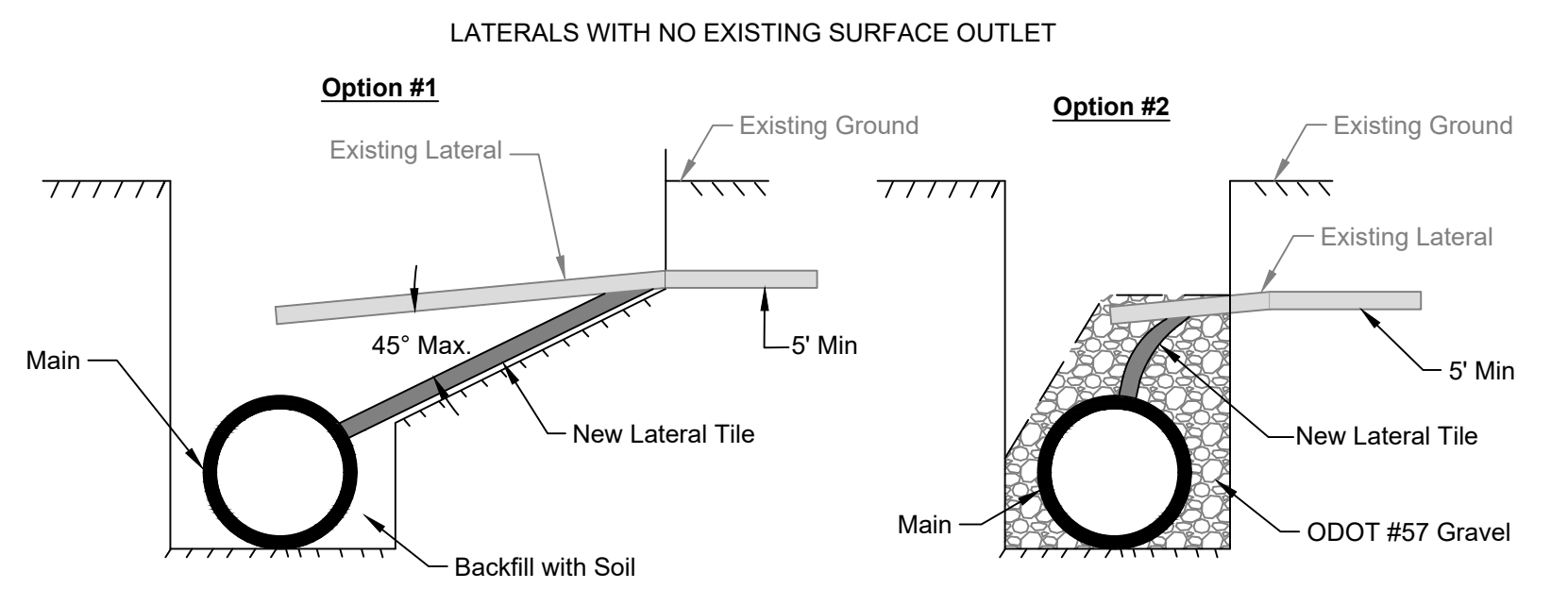
**STONE DRIVE, SINGLE PIPE
ODOT 611, TYPE "C", 707.33 INSTALLATION**



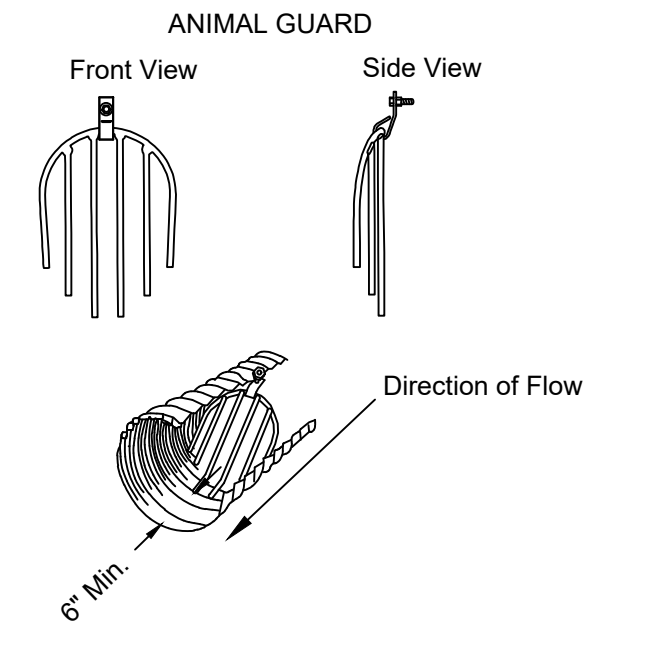
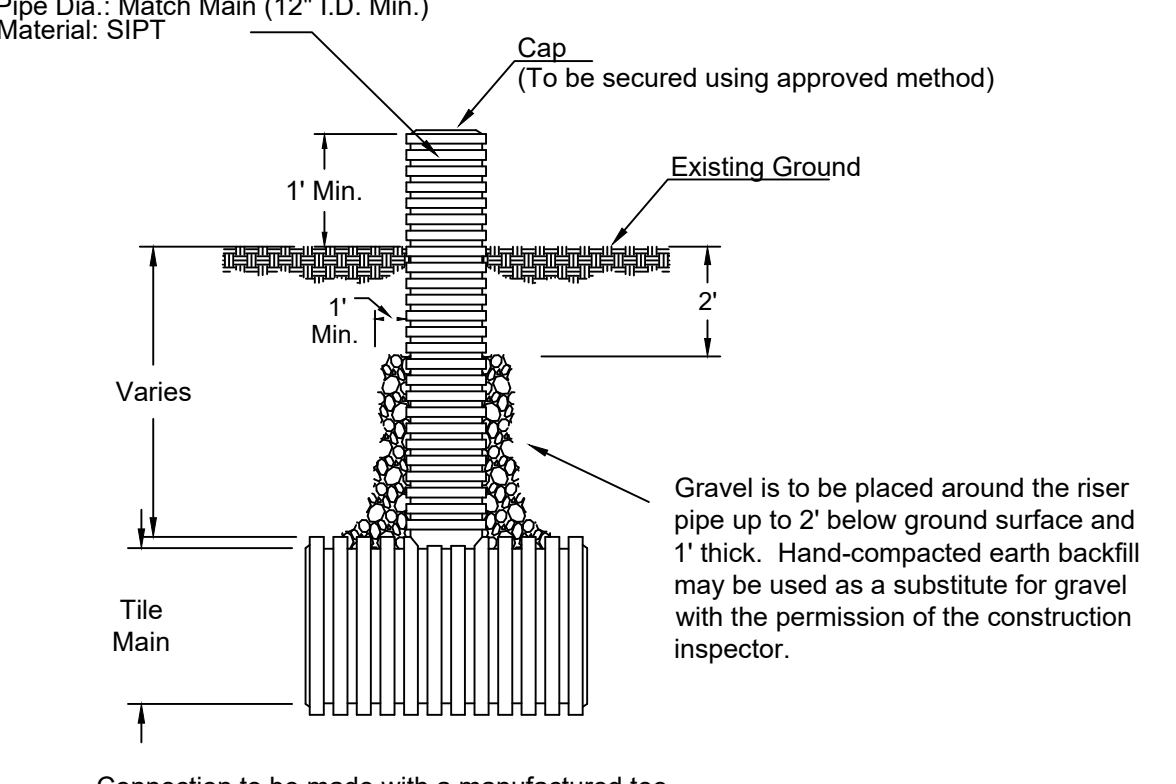
**PAVED DRIVE CUT INSTALLATION DETAIL
ODOT 611, TYPE "B", 707.33 INSTALLATION**



TYPICAL SUBSURFACE DRAIN LATERAL CONNECTION DETAILS (NRCS #606)
NOT TO SCALE



INSPECTION WELL DETAIL

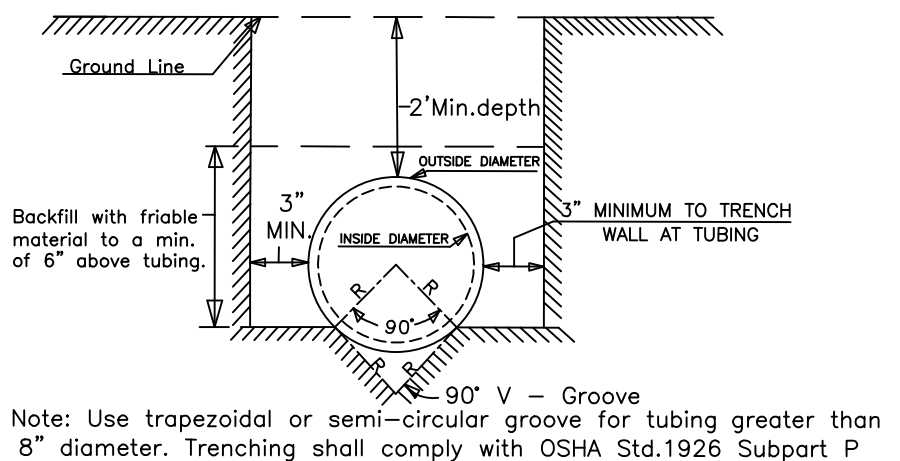


NOTES

- All tile shall be placed according to the Typical Subsurface Drain Installation Detail and the requirements of NRCS Specification #606.
- Removal of residual lateral tile regardless of size and/or material shall be considered part of the payment for this item.
- All connections shall be done using manufactured connectors.
- Any quantity of gravel used to make connections utilizing Option #2 shall be considered part of the payment for this item. Determining the quantity of gravel needed for making connections using this option shall be the sole responsibility of the contractor. Cleanup of gravel stockpile areas shall be as per the requirements of ODOT CMS 104.04.
- The contractor shall note on a dedicated copy of the plans, size, material, and connection option used to make all lateral connections.
- Lateral types regarding having or not having a surface outlet will be marked by the construction inspector.

Note:
Tile Main Breather shall have 20 evenly spaced 1 inch perforations per foot in the riser section. The surrounding ground will be graded to drain to the structure as per the instructions of the Construction Supervisor.

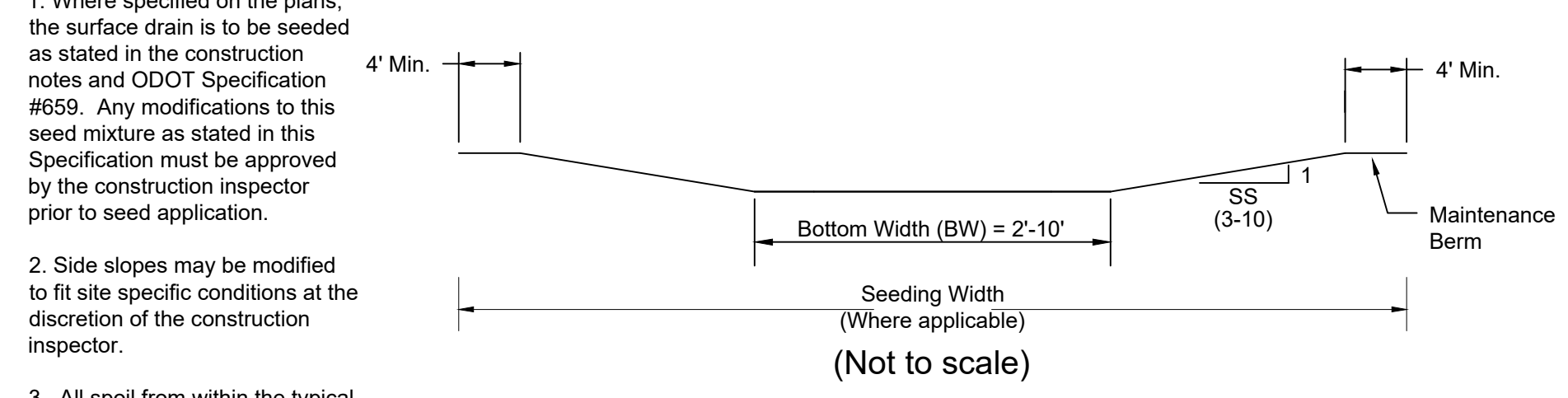
**NRCS 606 PIPE
INSTALLATION DETAIL**



Note: Use trapezoidal or semi-circular groove for tubing greater than 8" diameter. Trenching shall comply with OSHA Std.1926 Subpart P

SURFACE DRAIN (NRCS #608)

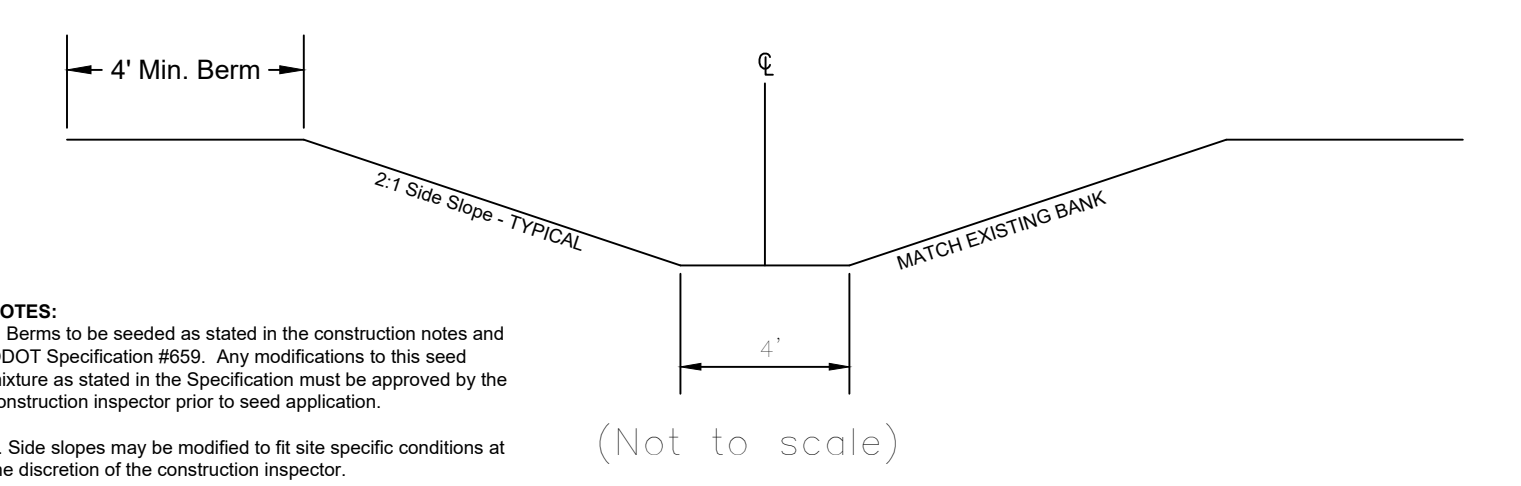
TYPICAL SURFACE DRAIN SWALE CROSS SECTION



- NOTES:**
- Where specified on the plans, the surface drain is to be seeded as stated in the construction notes and ODOT Specification #659. Any modifications to this seed mixture as stated in this Specification must be approved by the construction inspector prior to seed application.
 - Side slopes may be modified to fit site specific conditions at the discretion of the construction inspector.
 - All spoil from within the typical surface drain cross section shall be disposed of according to the specifications of NRCS #608 - Surface Drainage Main.

Open Channel (NRCS #582)

**TYPICAL OPEN CHANNEL CROSS SECTION
STA 26+25 - 31+75**



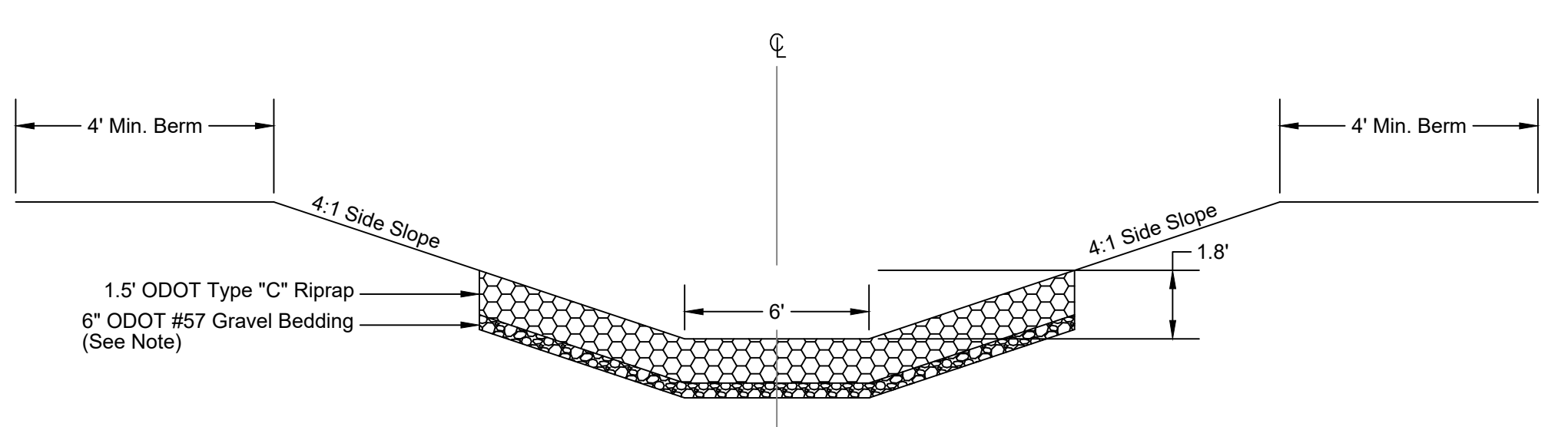
- NOTES:**
- Berms to be seeded as stated in the construction notes and ODOT Specification #659. Any modifications to this seed mixture as stated in the Specification must be approved by the construction inspector prior to seed application.
 - Side slopes may be modified to fit site specific conditions at the discretion of the construction inspector.

Temporary & Permanent Easements

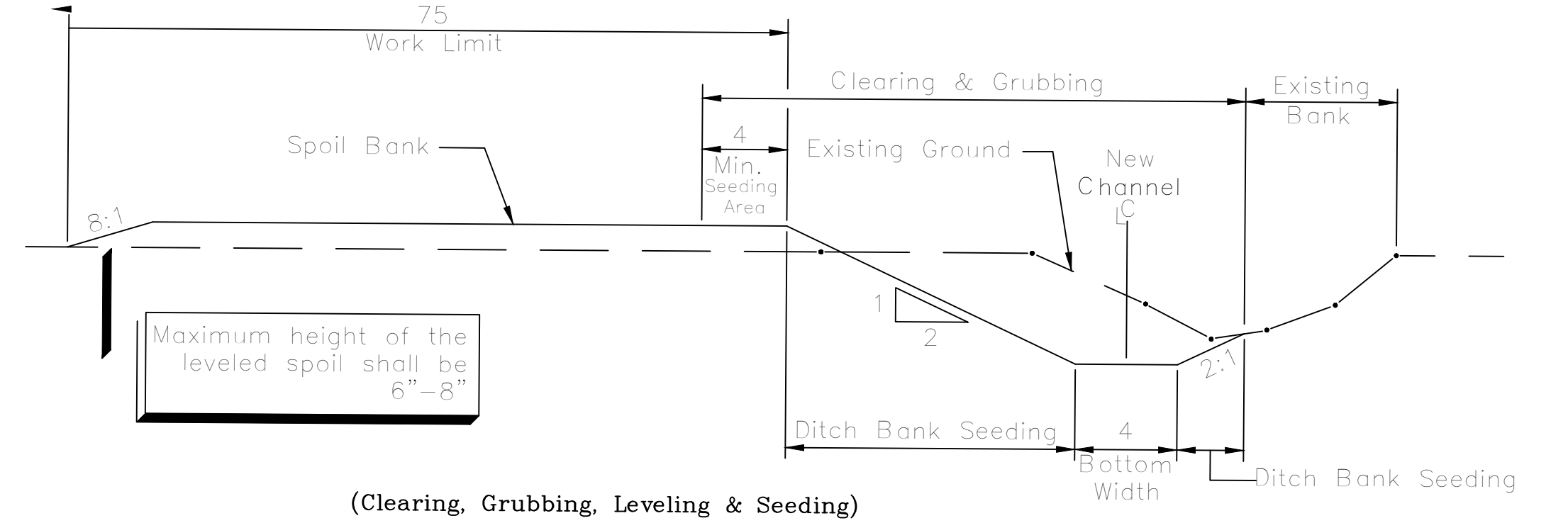
- The width of the temporary easement for construction shall be seventy-five feet as measured from the top of bank of the open channel, seventy-five feet as measured from the top of bank of the surface drain, and seventy-five feet as measured from the centerline of the subsurface drain where no surface drain cross-section is specified.
- A permanent easement will be established for maintenance and cleaning of the constructed improvement per ORC 6137.12. The width of the permanent easement will be based on the type of improvement constructed. For Open Channel and Surface Drain Swales, the permanent easement will be twenty-five feet from the top of bank on both sides of the channel, measured at right angles thereto. For closed ditches (subsurface drain installation only), the permanent easement shall be a maximum of eighty feet centered on the centerline of the improvement. The permanent easement for access shall be a maximum width of thirty feet and length as necessary to connect to the improvement as shown on these drawings.

LINED WATERWAY (NRCS #486)

**TYPICAL ROCK LINED CHANNEL CROSS SECTION
STA 18+55 - STA 19+30**



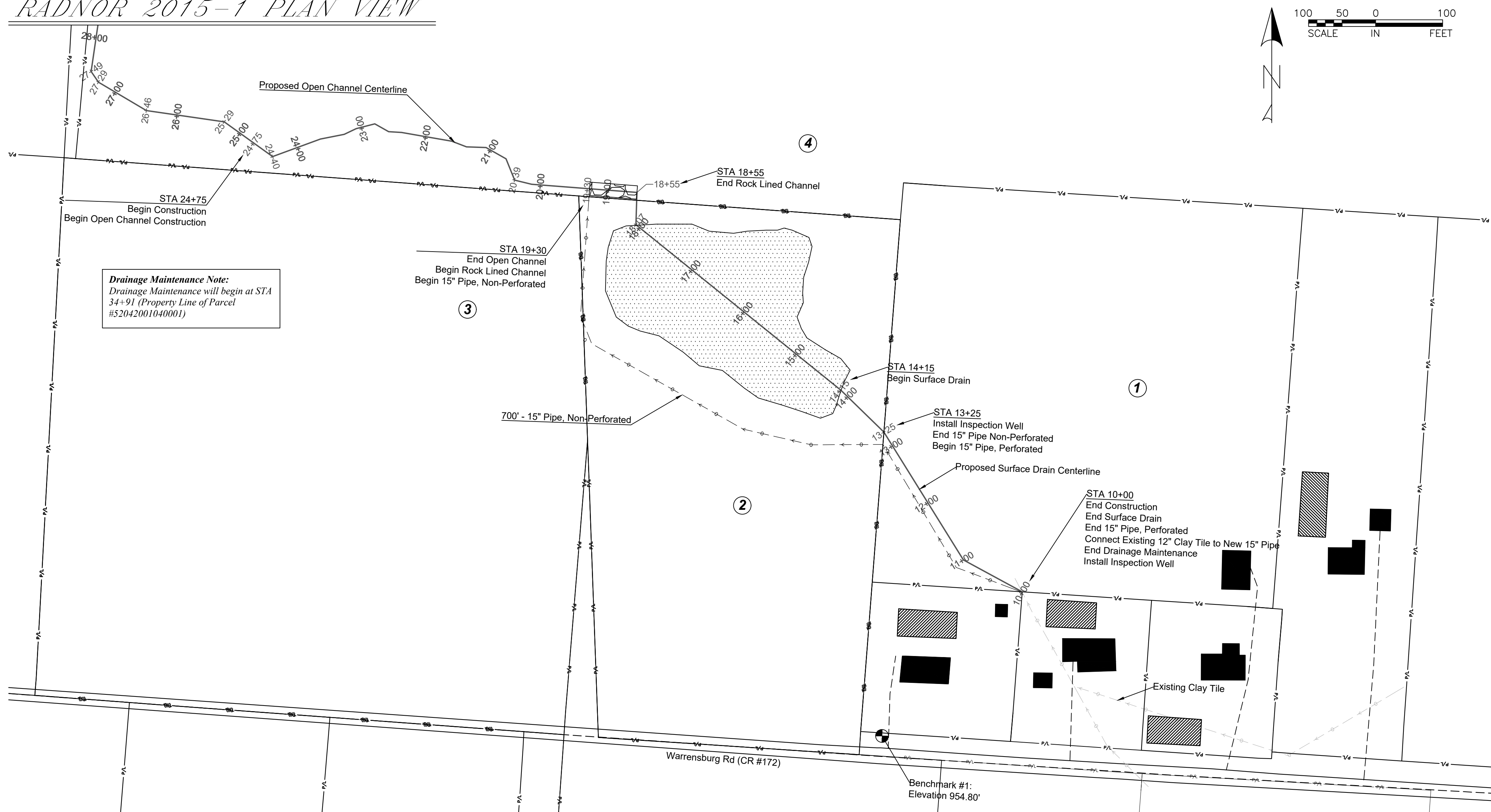
- NOTES:**
- Side Slopes and Berms to be seeded as stated in the construction notes and ODOT Specification #659. Any modifications to this seed mixture as stated in the Specification must be approved by the construction inspector prior to seed application.
 - Side slopes above rock may be modified to fit site specific conditions at the discretion of the construction inspector.
 - Placement of Geotextile fabric may be used as a substitute for the ODOT #57 gravel bedding at the discretion of the contractor. If Geotextile fabric is used, it must comply with the specifications of NRCS #561 - Heavy Use Area Protection (P. 4, Paragraph 3). Copies of this Specification are available upon request.
 - Excavation necessary above the upper limit of rock placement to blend the 4:1 side slope to existing ground will be considered part of the per lineal foot payment for this item.



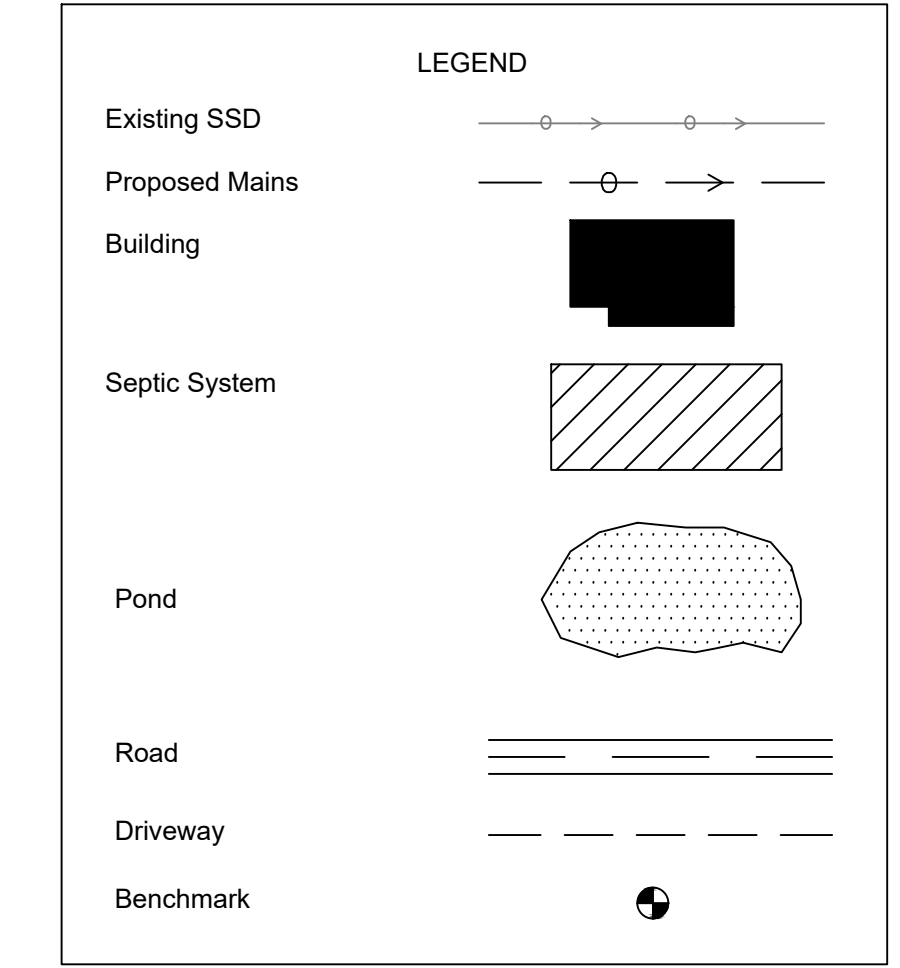
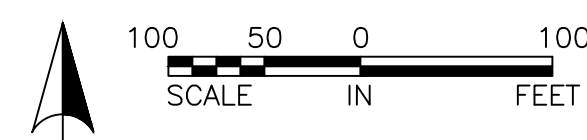
Typical One-Sided Construction Cross Section
Not to Scale

(Not to scale)

RADNOR 2015-1 PLAN VIEW



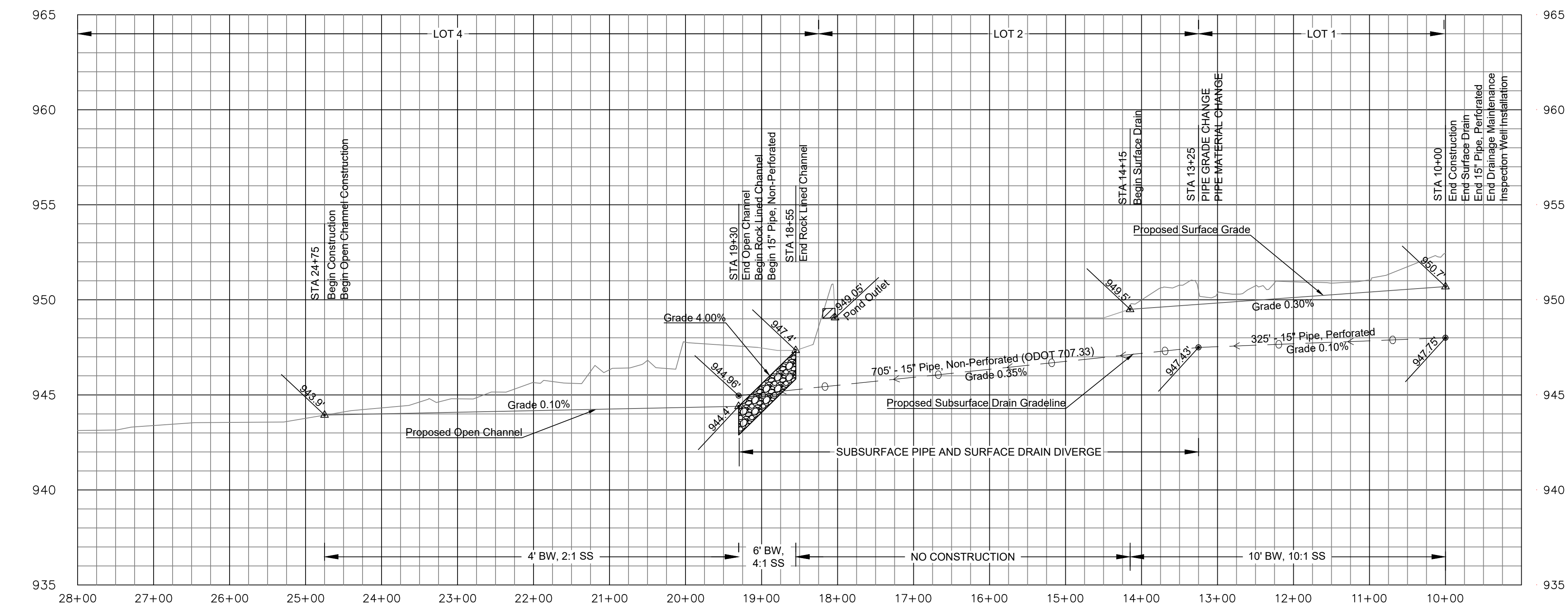
Drainage Maintenance Note:
Drainage Maintenance will begin at STA 34+91 (Property Line of Parcel #52042001040001)



- CONSTRUCTION NOTES**
- All General Construction Notes on P. 2 of 6 shall apply.
 - Details to be referenced on P. 2 of 6:
NRCS 486 Lined Waterway
NRCS 606 Pipe Installation
NRCS 608 Surface Drainage
NRCS 582 Open Channel Construction
Tile Inspection Well
Typical Subsurface Drain Lateral Connection
Fence Gates
 - All pipe installation shall be NRCS 606 type installation except locations as noted on the profile to be ODOT 611 type installation.
 - Fence gates shall be installed on Lot 5. Exact locations to be marked by the Construction Inspector.

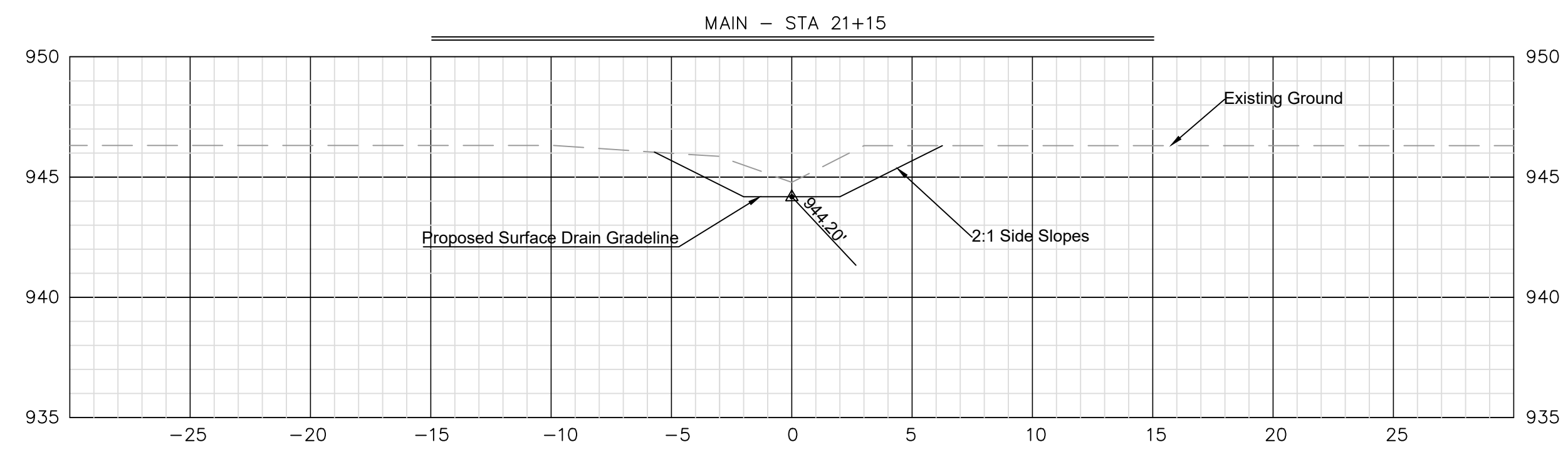
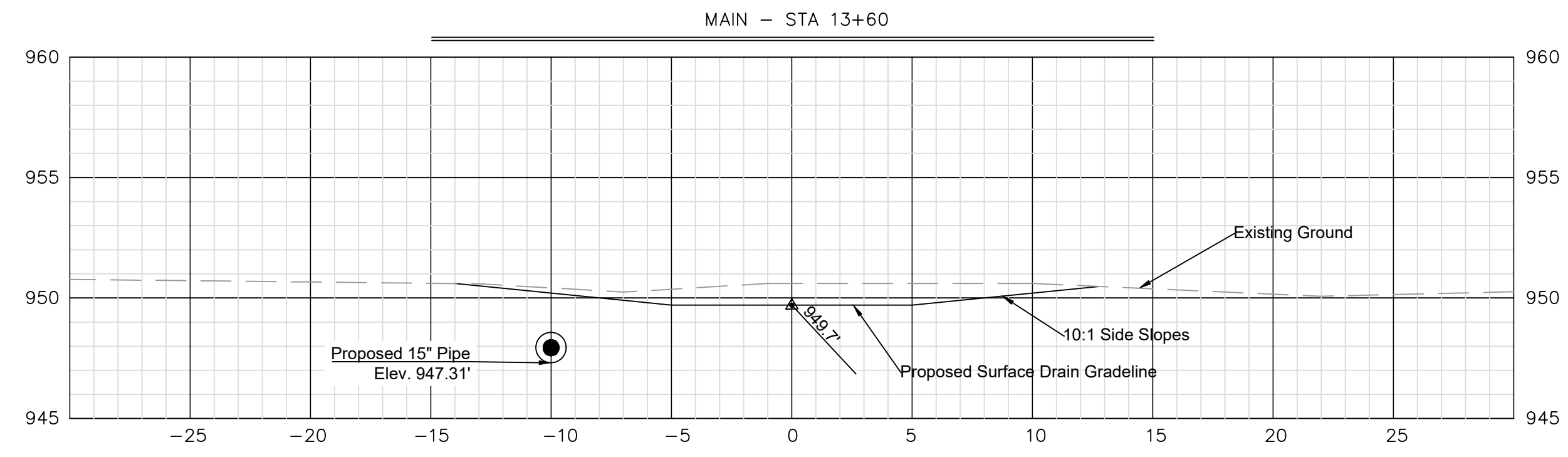
Lot	Owner	Address	Parcel Number
1	JEG Investment LLC	Warrensburg Rd	52041001094000
2	Houchard Aleshia Nicole	Warrensburg Rd	52044001001002
3	Frederick & Margaret Parks	Warrensburg Rd	52043001001000
4	MAKAPA LLC	State Route 37	52041001047000

RADNOR 2015-1 PROFILE



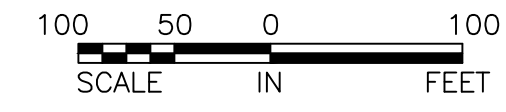
RADNOR #2015-1 Main			
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ODOT 659	Seeding & Mulching	5250	Square Yards

CROSS-SECTIONS



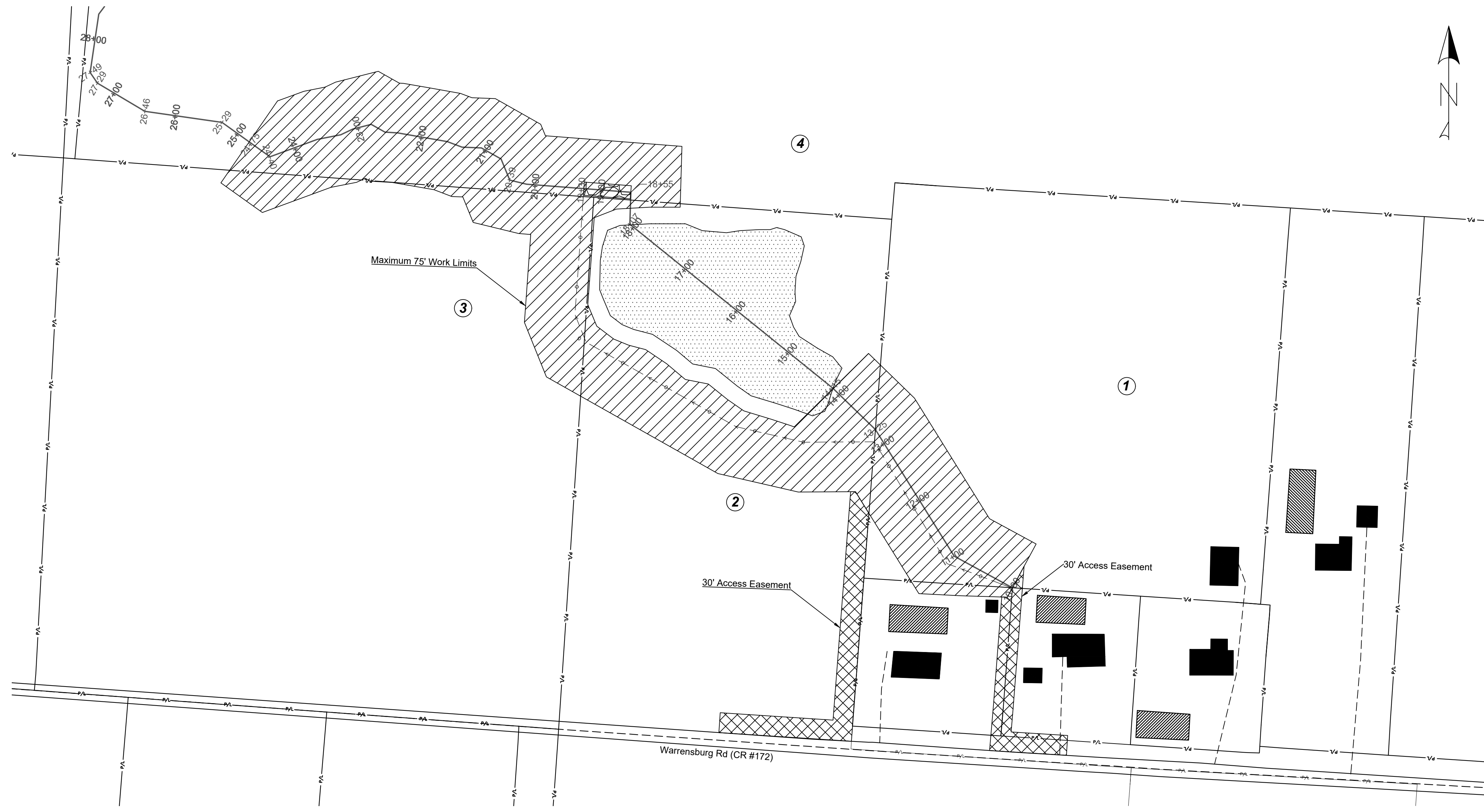
SCALE
HORIZ: 1" = 10'
VERT: 1" = 5'

EASEMENTS & WORK LIMITS



**RADNOR #2015-1
DRAINAGE IMPROVEMENT PROJECT
ENGINEERING DRAWINGS**

5
5



LEGEND

Existing SSD	
Proposed Mains	
Building	
Septic System	
Pond	
Road	
Driveway	
Benchmark	

Lot	Owner	Address	Parcel Number
1	JEG Investment LLC	Warrensburg Rd	52041001094000
2	Frederick & Margaret Parks	Warrensburg Rd	52044001001000
3	Frederick & Margaret Parks	Warrensburg Rd	52043001001000
4	MAKAPA LLC	State Route 37	52041001047000