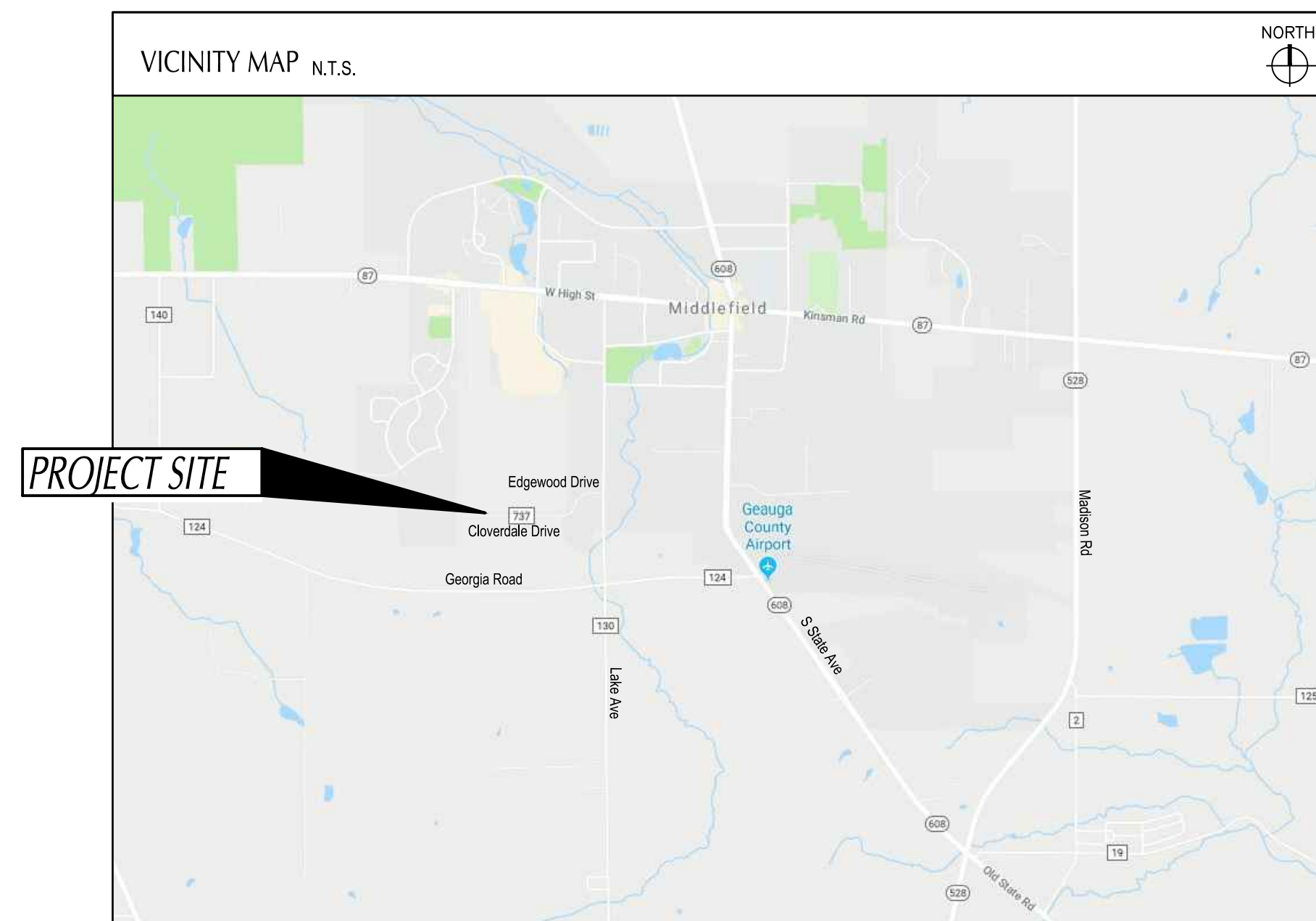


# IMPROVEMENT PLANS

# CLOVERDALE ESTATES DRAINAGE IMPROVEMENTS

## GEAUGA COUNTY

## MIDDLEFIELD, OHIO



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**PROJECT DESCRIPTION:**

DURING HEAVY RAIN EVENTS, OFFSITE RUNOFF FROM THE SOUTHWEST FLOWS THROUGH THE SITE. THE RUNOFF CONCENTRATES INTO AN OPEN CHANNEL WHICH PASSES BETWEEN UNITS 1547 AND 1555 TOWARD CLOVERDALE DRIVE. REACHING CLOVERDALE DRIVE, THE RUNOFF FLOWS EAST ALONG THE ROAD FOR ABOUT 800-FEET BEFORE FLOWING SOUTH TOWARD GEORGIA ROAD (TOWNSHIP HIGHWAY 124).

ON OCCASION, THE UNITS AT THE EAST END OF THE SITE HAVE BEEN FLOODED. THE INTENT OF THE PROJECT IS TO GRADE A SWALE ALONG THE SOUTH SIDE OF THE DEVELOPMENT WHICH WILL CAPTURE THE OFFSITE WATER AND DIVERT IT AWAY FROM THE HOUSING UNITS.

**OHO SPECIFICATION:**

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

**OWNER:**

GEAUGA METROPOLITAN HOUSING AUTHORITY  
385 CENTER STREET  
CHARDON, OHIO 44024

PHONE: 440-286-7413 FAX: 440-286-7496

REV.	DATE	DESCRIPTION

**CLOVERDALE ESTATES DRAINAGE**  
**GEAUGA METROPOLITAN HOUSING AUTHORITY**  
**385 CENTER STREET, CHARDON, OHIO 44042**

TITLE SHEET

ISSUED FOR:	
PERMIT	8/30/18
BID	8/30/18
CONSTRUCTION	10/25/18
RECORD	--

PROJECT MANAGER	DESIGNER
RDM	TRS

JOB NO.  
**2018359.02**

TS-001

**GENERAL PLAN NOTES**

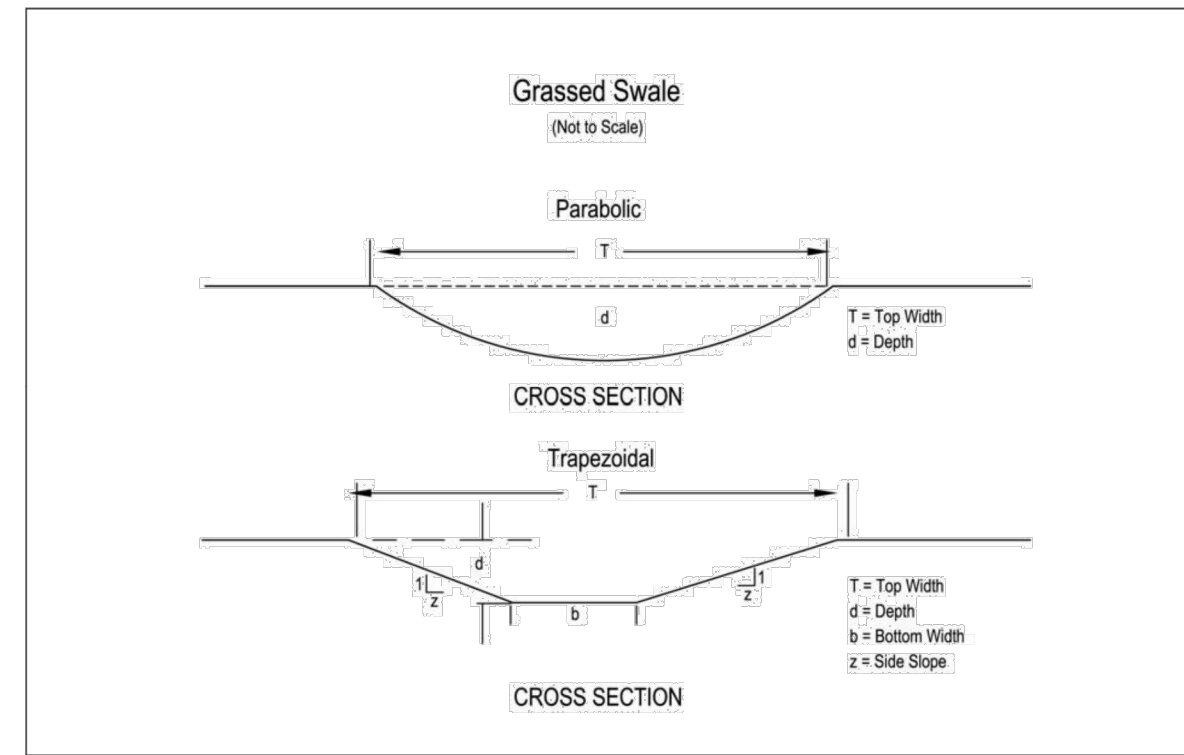
- PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY.
- THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THE PLAN ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORDS. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO STARTING CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE.
- ALL DIMENSIONS, GRADES, AND UTILITY LOCATIONS SHOWN ON THESE PLANS WERE BASED ON A FIELD TOPOGRAPHIC SURVEY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY CONSTRUCTION/PROJECT MANAGER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO INFORMATION SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- ALL WORK WITHIN THE RIGHTS OF WAY SHALL BE IN ACCORDANCE WITH THE GOVERNING JURISDICTION AND SPECIFICATIONS.
- CONTRACTOR SHALL COORDINATE ANY MAINTENANCE OF TRAFFIC WITH THE OWNER'S REPRESENTATIVE AND THE LOCAL JURISDICTION PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL AT ALL TIMES ENSURE THAT SWPP MEASURES PROTECTING EXISTING DRAINAGE FACILITIES BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY PHASE OF THE SITE CONSTRUCTION OR LAND ALTERATION. (SEE SWPP SHEETS).
- UPON COMPLETION OF PROJECT, CONTRACTOR SHALL CLEAN THE PAVED AREAS PRIOR TO REMOVAL OF TEMPORARY SEDIMENT CONTROLS, AS DIRECTED BY THE CITY AND/OR CONSTRUCTION/PROJECT MANAGER. IF POWER WASHING IS USED, NO SEDIMENT LADEN WATER SHALL BE WASHED INTO THE STORM SYSTEM. ALL SEDIMENT LADEN MATERIAL ON PAVEMENT OR WITHIN THE STORM SYSTEM SHALL BE COLLECTED AND REMOVED FROM THE SITE AT CONTRACTOR'S EXPENSE.
- THE CONTRACTOR WILL, UPON BECOMING AWARE OF SUBSURFACE OR LATENT PHYSICAL CONDITIONS DIFFERING FROM THOSE DISCLOSED BY THE CONTRACT DOCUMENTS, PROMPTLY NOTIFY THE OWNER VERBALLY TO PERMIT VERIFICATION OF THE CONDITIONS AND IN WRITING, AS TO THE NATURE OF THE DIFFERING CONDITIONS. NO CLAIM BY THE CONTRACTOR FOR ANY CONDITIONS DIFFERING FROM THOSE ANTICIPATED IN THE PLAN AND SPECIFICATIONS AND DISCLOSED BY THE SOIL STUDIES WILL BE ALLOWED UNLESS THE CONTRACTOR HAS SO NOTIFIED THE OWNER, VERBALLY AND IN WRITING AS REQUIRED ABOVE, OF SUCH DIFFERING CONDITIONS.
- THESE PROJECT CONSTRUCTION DOCUMENTS SHALL NOT CONSTITUTE A CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR THE ENGINEER AND THE SUBCONTRACTOR.
- THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION OR SAFETY MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES UTILIZED IN CONSTRUCTION BY THE CONTRACTOR OR SUBCONTRACTORS.
- THE CONTRACTOR SHALL RUN AN INDEPENDENT VERTICAL CONTROL TRAVERSE TO CHECK BENCHMARKS AND A HORIZONTAL CONTROL TRAVERSE THROUGH THE REFERENCED PROJECT CONTROL DATUM TO CONFIRM GEOMETRIC DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION.

**GRADING PLAN NOTES**

- BEFORE STARTING GRADING OPERATIONS, SEE SHEETS SWP-1 THRU SWP-4, STORMWATER POLLUTION PREVENTION PLAN, NOTES, AND DETAILS (SWPP).
- PRIOR TO SITE CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL INSTALL ALL SWPP MEASURES TO PROTECT EXISTING DRAINAGE FACILITIES. CONTRACTOR SHALL PREVENT SILTATION FROM LEAVING THE SITE AT ALL TIMES.
- STRIP GRADING AREAS OF ALL ORGANIC TOPSOILS. STOCKPILE SUITABLE TOPSOILS FOR RESPREADING ONTO LANDSCAPE AREAS. EXCESS EXCAVATED MATERIALS MAY BE SPOILED ON-SITE WITH THE OWNER'S PERMISSION. ALL WASTE, DEBRIS, AND UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE.
- SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL SOFT, YIELDING OR UNSUITABLE MATERIALS AND REPLACING WITH SUITABLE MATERIALS. UNLESS OTHERWISE SPECIFIED IN THE PLANS OR SPECIFICATIONS, THE SITE GRADING, EXCAVATION, AND EMBANKMENT SHALL BE IN ACCORDANCE WITH THE STATE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.
- AT A MINIMUM ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED TO 80% OF STANDARD PROCTOR MAXIMUM DRY DENSITY PER A.S.T.M. TEST D-698. MOISTURE CONTENT AT TIME OF PLACEMENT SHALL NOT EXCEED 2% ABOVE NOR 2% BELOW OPTIMUM. NOTIFY PROJECT ENGINEER IF ANY UNSUITABLE SOILS ARE FOUND.
- FOLLOWING GRADING OF SUBSOIL TO SUBGRADE ELEVATIONS THE CONTRACTOR SHALL PLACE TOPSOIL TO A 5" DEPTH IN ALL DISTURBED AREAS WHICH ARE NOT TO BE PAVED. SMOOTHLY FINISH GRADE TO MEET SURROUNDING LAWN AREAS AND ENSURE POSITIVE DRAINAGE. TOPSOIL SHALL BE FREE OF SUBSOIL, DEBRIS, BRUSH AND STONES LARGER THAN 1" IN ANY DIMENSION. EXCESS TOPSOIL MAY BE SPOILED ON-SITE WITH THE OWNER'S PERMISSION.
- ELEVATIONS GIVEN ARE AT FINISHED GRADE UNLESS OTHERWISE SPECIFIED ON GRADING PLAN. ALL GRADING SHALL BE STRAIGHT, EVEN, AND UNIFORM WITH A MINIMUM OF 1% SLOPE TOWARD THE COLLECTION POINTS UNLESS OTHERWISE SPECIFIED ON THE GRADING PLAN. DO NOT ALLOW NEGATIVE GRADES OR PONDING OF WATER.

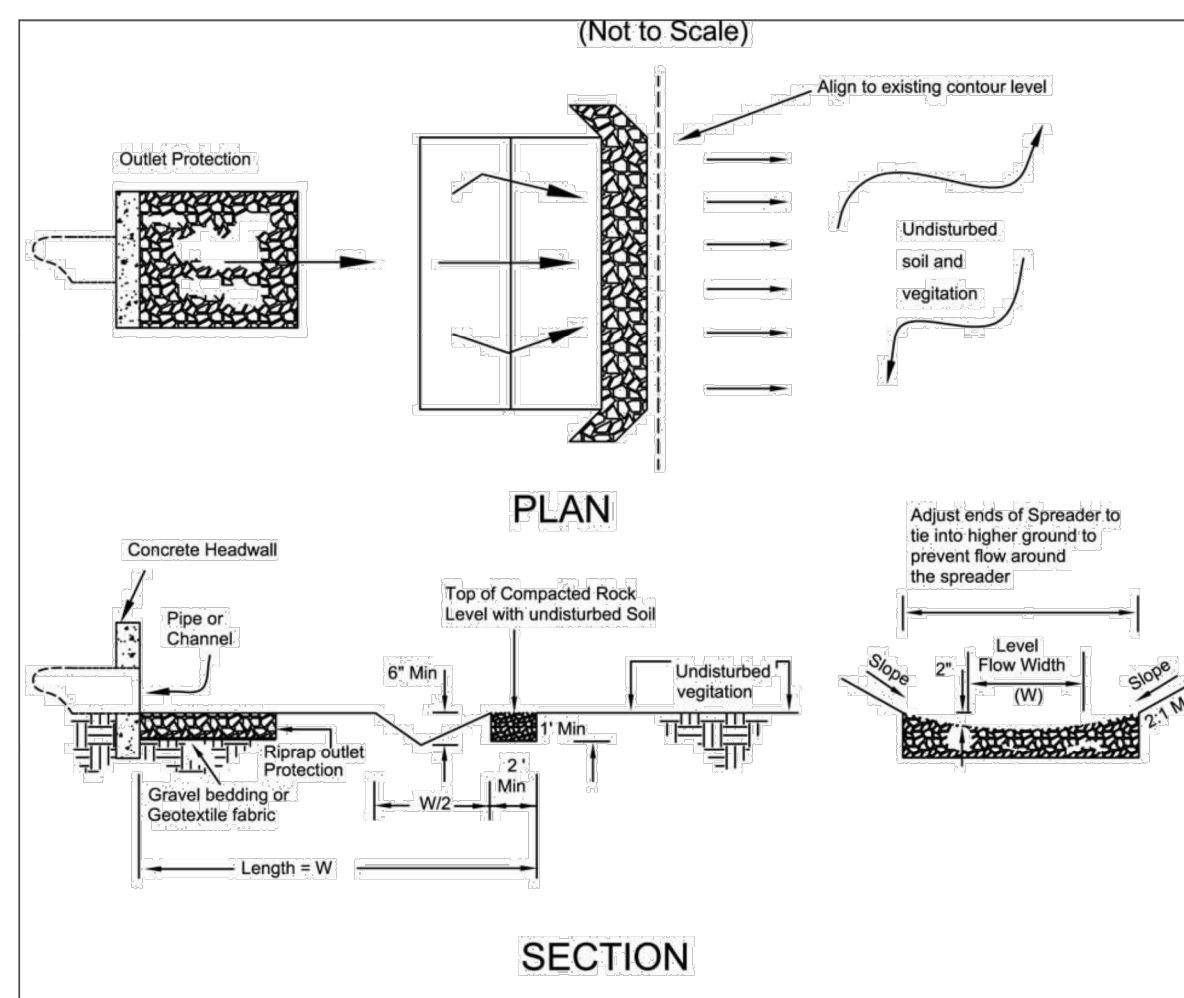
**PLAN REPRODUCTION WARNING**  
 THE PLANS HAVE BEEN CREATED ON ANSI D (22"x34") SHEETS, REFER TO GRAPHIC SCALE.

**Specifications for Grassed Swale**

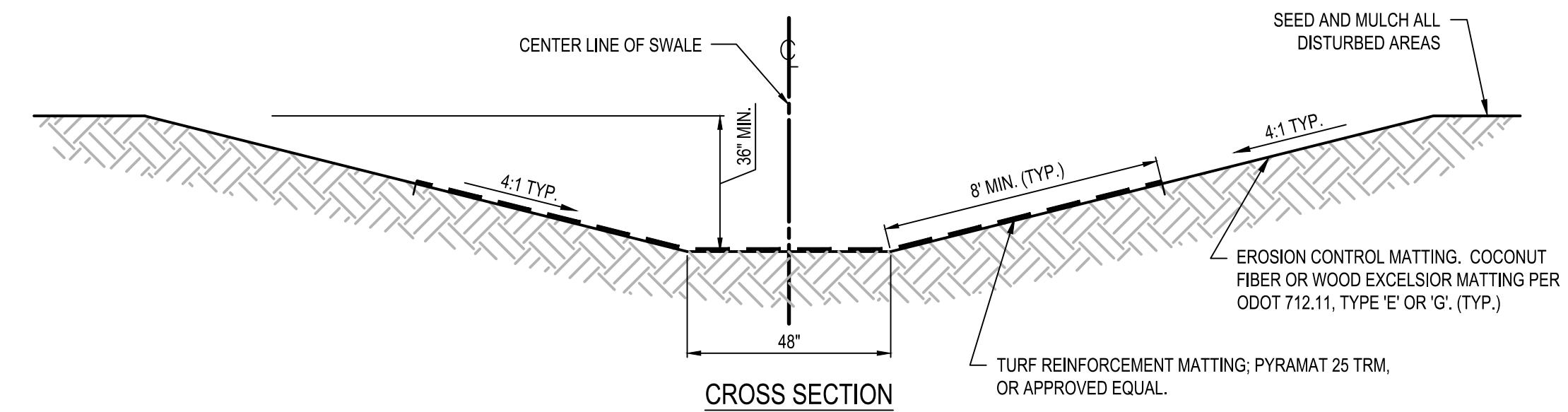


- All trees, brush, stumps, and other unsuitable material shall be removed from the site.
- The channel shall be excavated and shaped to the proper grade and cross section.
- Fill material used in the construction of the channel shall be well compacted in uniform layers not exceeding 9 inches using the wheel treads or tracks of the construction equipment to prevent unequal settlement.
- Excess earth shall be graded or disposed of so that it will not restrict flow to the channel or interfere with its functioning.
- Stabilization shall be done according to the appropriate specifications for permanent seeding, vegetative practices, sodding and matting.
- Construction shall be sequenced so that newly constructed channels are stabilized prior to becoming operational. To aid in the establishment of vegetation, surface water may be prevented from entering the newly constructed channel through the establishment period.
- Gullies that may form in the channel or other erosion damage that occurs before the grass lining becomes established shall be repaired without delay.

**Specifications for Rigid Lip Level Spreader**

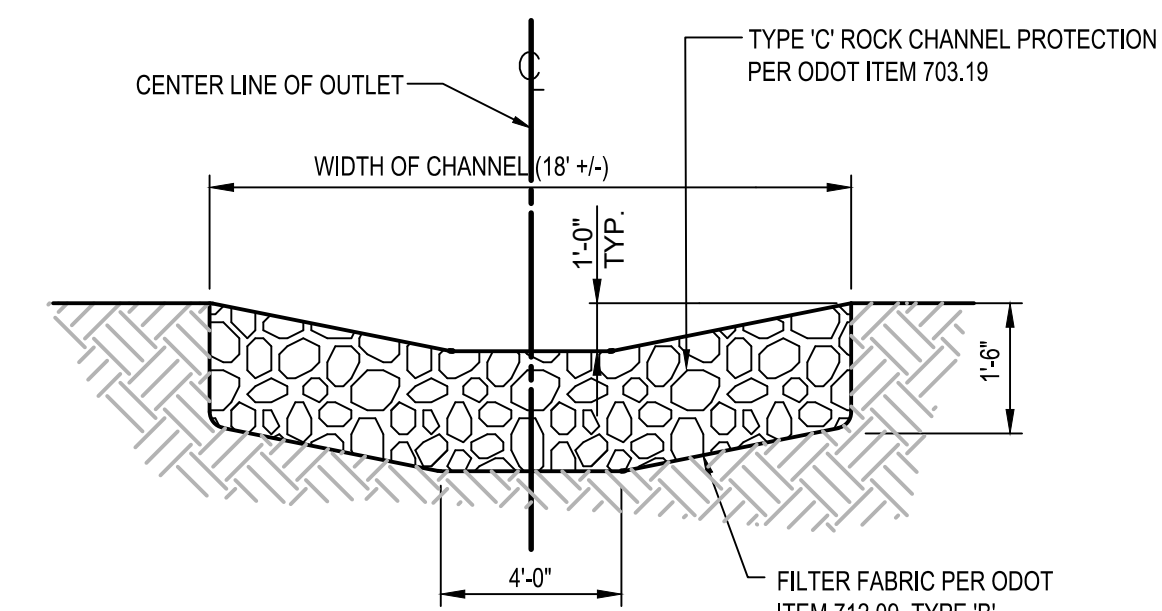


- Construct level spreader on a level grade to ensure uniform spreading of storm runoff.
- Level spreaders must be constructed on undisturbed soil, NOT on fill.
- The level spreader must outlet to erosion-resistant areas with established existing vegetation.
- Rock shall be ODOT Type D where 50% of the material by weight is larger than 6 inches, and 85% of the material by weight is larger than 3 inches but less than 12 inches.
- Rock in level spreader shall be compacted with at least two passes of heavy machinery to prevent further settling. Spread gravel or soil over top of the placed riprap surface to fill the voids and interlock the riprap together.
- Fertilizing, seeding, and mulching shall conform to the recommendations in the applicable vegetative specification.



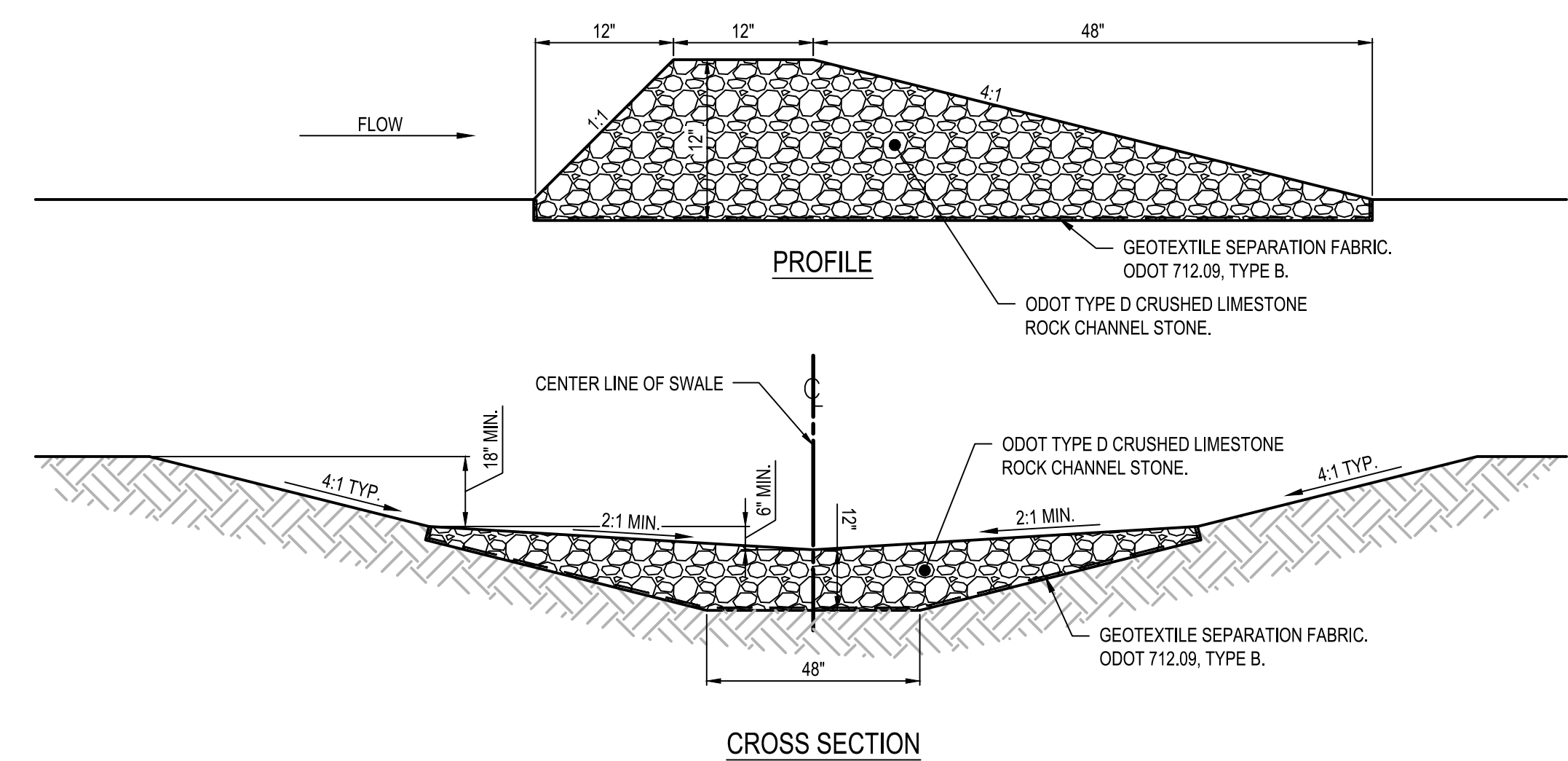
- GENERAL NOTES:**
- SEE SHEET C-111 FOR GRADING AND ALIGNMENT INFORMATION.
  - MINIMUM CHANNEL DEPTH = 36", MINIMUM SLOPE = 2.0%.

**C4 VEGETATED SWALE SECTION**  
N.T.S.



NOTE: SEE SITE PLAN FOR LENGTH

**B4 ROCK CHANNEL PROTECTION**  
N.T.S.



- GENERAL NOTES:**
- THE MIDPOINT OF THE ROCK CHECK DAM SHALL BE A MINIMUM OF 6 INCHES LOWER THAN THE SIDES IN ORDER TO DIRECT FLOW ACROSS THE CENTER AND AWAY FROM THE SIDES OF THE CHANNEL.
  - THE BASE OF THE CHECK DAM SHALL BE ENTRENCHED APPROXIMATELY 6 INCHES.
  - STONE MATERIAL SHALL BE CRUSHED STONE. NO RECYCLED CONCRETE OR SLAG.

**A4 ROCK CHECK DAM**  
N.T.S.

REV.	DATE	DESCRIPTION

**CLOVERDALE ESTATES DRAINAGE**  
 GEALGA METROPOLITAN HOUSING AUTHORITY  
 385 CENTER STREET, CHARDON, OHIO 44042

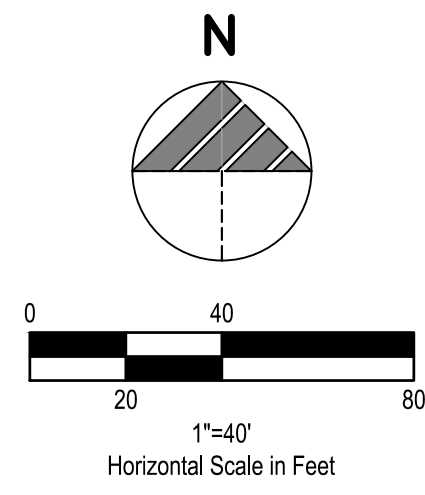
**GENERAL NOTES AND DETAILS**

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PROJECT MANAGER	DESIGNER
RDM	TRS

JOB NO.  
**2018359.02**

**C-001**



**BENCHMARK:**  
 BENCHMARK 1  
 "M" IN MUELLER ON HYDRANT  
 NORTHING: 653715.627  
 EASTING: 2355815.218  
 ELEVATION: 1192.56

**Underground Utilities**

2 Working Days  
 Before You Dig  
 Call 800-362-2764 (Toll Free)  
 Ohio Utilities Protection Service

Non-members  
 Must Be Called Directly

Call 800-925-0988 (Toll Free)  
 Oil & Gas Producers Utility Protection Service

- LEGEND:**
- EXISTING ELECTRIC METER
  - EXISTING FIRE HYDRANT
  - EXISTING GAS METER
  - EXISTING CLEANOUT
  - EXISTING CONCRETE PAD/AREA/SIDEWALK
  - EXISTING WOOD BRIDGE
  - EXISTING TREE LINE
  - EXISTING SWALE
  - ROCK
  - BUSH/SHRUB
  - DECIDUOUS TREE
  - DEMOLITION KEYNOTE

- GENERAL SHEET NOTES**
1. REFER TO SHEET C-001 FOR GENERAL NOTES AND LEGEND INFORMATION.
  2. INSTALL SILT FENCE AND PERIMETER CONTROLS PRIOR TO REMOVING VEGETATION AND STRIPPING TOPSOIL.
  3. SALVAGE AND STOCKPILE TOPSOIL FOR RE-SPREADING ON DISTURBED AREAS.

- PLAN KEYNOTES** (#)
1. TREE/SHRUB TO BE REMOVED.
  2. CLEAR BRUSH AND SCRUB VEGETATION.

**DEMOLITION NOTE:**  
 ALL EXISTING SITE AND SURROUNDING FEATURES SUCH AS UTILITIES, PAVEMENT, CURB, LANDSCAPING, ETC. SHALL REMAIN AND BE PROTECTED THROUGHOUT CONSTRUCTION UNLESS NOTED OTHERWISE, OR ARE REQUIRED TO BE MODIFIED OR REMOVED FOR THE INSTALLATION OF PROPOSED IMPROVEMENTS. ALL DISTURBED FEATURES SHALL BE RESTORED OR RELOCATED AS REQUIRED TO THE SATISFACTION OF THE OWNER. CONTRACTOR SHALL REPAIR/REPLACE ANY SURROUNDING FEATURES DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE OWNER.

REV.	DATE	DESCRIPTION



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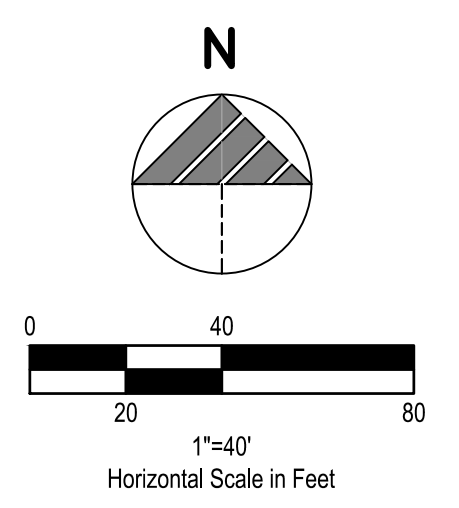
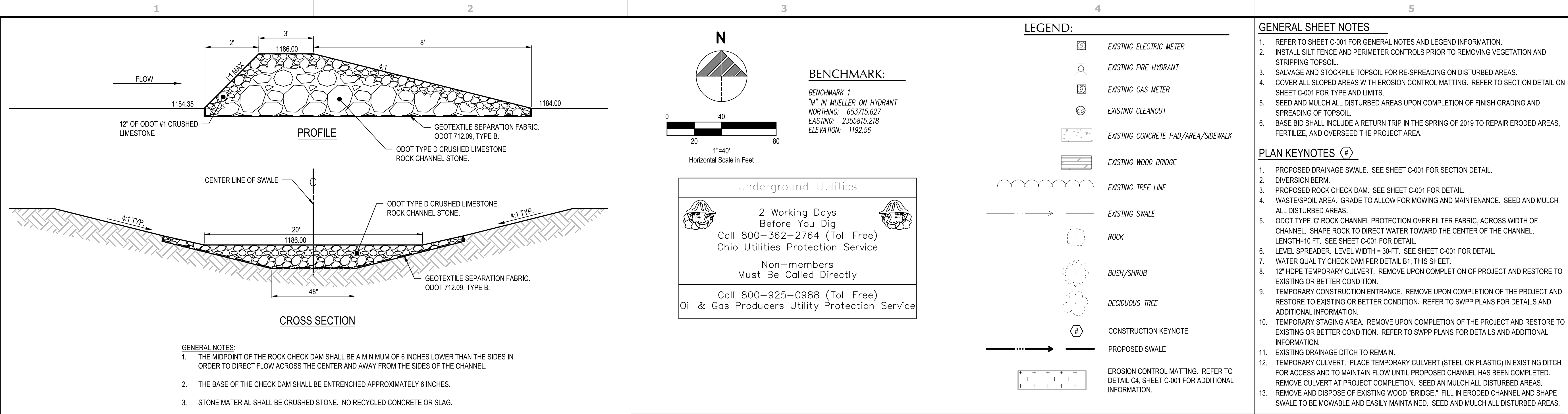
**CLOVERDALE ESTATES DRAINAGE**  
 GEauga METROPOLITAN HOUSING AUTHORITY  
 385 CENTER STREET, CHARDON, OHIO 44042

**EXISTING CONDITIONS AND  
 DEMOLITION PLAN**

ISSUED FOR:	
PERMIT	8/30/18
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**BENCHMARK:**  
 BENCHMARK 1  
 "M" IN MUELLER ON HYDRANT  
 NORTHING: 653715.627  
 EASTING: 2355815.218  
 ELEVATION: 1192.56

**LEGEND:**

	EXISTING ELECTRIC METER
	EXISTING FIRE HYDRANT
	EXISTING GAS METER
	EXISTING CLEANOUT
	EXISTING CONCRETE PAD/AREA/SIDEWALK
	EXISTING WOOD BRIDGE
	EXISTING TREE LINE
	EXISTING SWALE
	ROCK
	BUSH/SHRUB
	DECIDUOUS TREE
	CONSTRUCTION KEYNOTE
	PROPOSED SWALE
	EROSION CONTROL MATTING. REFER TO DETAIL C4, SHEET C-001 FOR ADDITIONAL INFORMATION.

- GENERAL SHEET NOTES**
- REFER TO SHEET C-001 FOR GENERAL NOTES AND LEGEND INFORMATION.
  - INSTALL SILT FENCE AND PERIMETER CONTROLS PRIOR TO REMOVING VEGETATION AND STRIPPING TOPSOIL.
  - SALVAGE AND STOCKPILE TOPSOIL FOR RE-SPREADING ON DISTURBED AREAS.
  - COVER ALL SLOPED AREAS WITH EROSION CONTROL MATTING. REFER TO SECTION DETAIL ON SHEET C-001 FOR TYPE AND LIMITS.
  - SEED AND MULCH ALL DISTURBED AREAS UPON COMPLETION OF FINISH GRADING AND SPREADING OF TOPSOIL.
  - BASE BID SHALL INCLUDE A RETURN TRIP IN THE SPRING OF 2019 TO REPAIR ERODED AREAS, FERTILIZE, AND OVERSEED THE PROJECT AREA.

- PLAN KEYNOTES (#)**
- PROPOSED DRAINAGE SWALE. SEE SHEET C-001 FOR SECTION DETAIL.
  - DIVERSION BERM.
  - PROPOSED ROCK CHECK DAM. SEE SHEET C-001 FOR DETAIL.
  - WASTE/SPOIL AREA. GRADE TO ALLOW FOR MOWING AND MAINTENANCE. SEED AND MULCH ALL DISTURBED AREAS.
  - ODOT TYPE 'C' ROCK CHANNEL PROTECTION OVER FILTER FABRIC, ACROSS WIDTH OF CHANNEL. SHAPE ROCK TO DIRECT WATER TOWARD THE CENTER OF THE CHANNEL. LENGTH=10 FT. SEE SHEET C-001 FOR DETAIL.
  - LEVEL SPREADER. LEVEL WIDTH = 30-FT. SEE SHEET C-001 FOR DETAIL.
  - WATER QUALITY CHECK DAM PER DETAIL B1, THIS SHEET.
  - 12" HDPE TEMPORARY CULVERT. REMOVE UPON COMPLETION OF PROJECT AND RESTORE TO EXISTING OR BETTER CONDITION.
  - TEMPORARY CONSTRUCTION ENTRANCE. REMOVE UPON COMPLETION OF THE PROJECT AND RESTORE TO EXISTING OR BETTER CONDITION. REFER TO SWPP PLANS FOR DETAILS AND ADDITIONAL INFORMATION.
  - TEMPORARY STAGING AREA. REMOVE UPON COMPLETION OF THE PROJECT AND RESTORE TO EXISTING OR BETTER CONDITION. REFER TO SWPP PLANS FOR DETAILS AND ADDITIONAL INFORMATION.
  - EXISTING DRAINAGE DITCH TO REMAIN.
  - TEMPORARY CULVERT. PLACE TEMPORARY CULVERT (STEEL OR PLASTIC) IN EXISTING DITCH FOR ACCESS AND TO MAINTAIN FLOW UNTIL PROPOSED CHANNEL HAS BEEN COMPLETED. REMOVE CULVERT AT PROJECT COMPLETION. SEED AN MULCH ALL DISTURBED AREAS.
  - REMOVE AND DISPOSE OF EXISTING WOOD "BRIDGE." FILL IN ERODED CHANNEL AND SHAPE SWALE TO BE MOWABLE AND EASILY MAINTAINED. SEED AND MULCH ALL DISTURBED AREAS.

- GENERAL NOTES:**
- THE MIDPOINT OF THE ROCK CHECK DAM SHALL BE A MINIMUM OF 6 INCHES LOWER THAN THE SIDES IN ORDER TO DIRECT FLOW ACROSS THE CENTER AND AWAY FROM THE SIDES OF THE CHANNEL.
  - THE BASE OF THE CHECK DAM SHALL BE ENTRENCHED APPROXIMATELY 6 INCHES.
  - STONE MATERIAL SHALL BE CRUSHED STONE. NO RECYCLED CONCRETE OR SLAG.

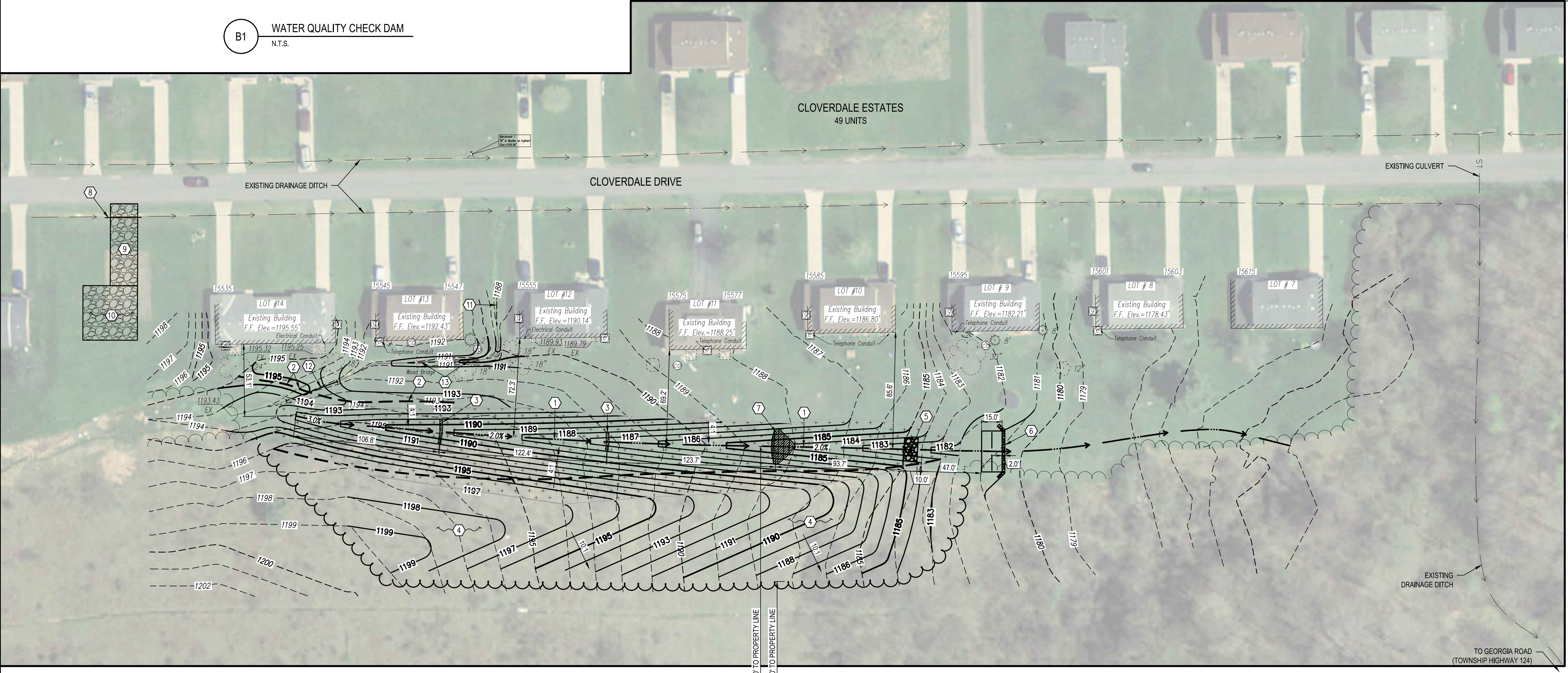
**B1 WATER QUALITY CHECK DAM**  
 N.T.S.

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 Ohio Utilities Protection Service

Non-members  
 Must Be Called Directly

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 Oil & Gas Producers Utility Protection Service



**A1 SITE AND GRADING PLAN**  
 1" = 40'

REV.	DATE	DESCRIPTION
1	9/26/18	GEALIGA SWCD REVIEW COMMENTS
2	10/24/18	UPDATE GRADING OF EXISTING DITCH

**CLOVERDALE ESTATES DRAINAGE**  
 GEALIGA METROPOLITAN HOUSING AUTHORITY  
 385 CENTER STREET, CHARDON, OHIO 44042

**SITE AND GRADING PLAN**

ISSUED FOR:

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**C-111**

**STORM WATER POLLUTION PREVENTION NOTES**

- ALL WORK SPECIFIED AS AN DEPARTMENT OF TRANSPORTATION ITEM SHALL BE GOVERNED BY THE CURRENT STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AS WELL AS THE CURRENT EDITION OF THE LOCAL JURISDICTION STORM WATER MANAGEMENT MANUAL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO POSSESS AND TO BE FAMILIAR WITH APPLICABLE SECTIONS.
- THESE CONTRACT DRAWING SHALL BE MADE AVAILABLE ON SITE AT ALL TIMES AND PRESENTED UPON REQUEST. IF UNFORESEEN STORM WATER POLLUTION IS ENCOUNTERED, ADDITIONAL STORM WATER POLLUTION PREVENTION (SWPP) MEASURES SHALL BE IMPLEMENTED TO MANAGE THE CURRENT SITE CONDITIONS WHICH MAY BE REQUESTED BY THE OWNER, COUNTY ENGINEER, PROJECT ENGINEER OR SOIL AND WATER CONSERVATION SERVICE REPRESENTATIVE AT ANYTIME. SUCH REQUESTS AND CHANGE IN SITE CONDITIONS SHALL BE IMPLEMENTED IMMEDIATELY AT CONTRACTOR'S EXPENSE.
- ALL STORM WATER POLLUTION PREVENTION PRACTICES WILL BE INSTALLED BEFORE ANY OTHER EARTH MOVING OCCURS.
- ALL STORM WATER POLLUTION PREVENTION ITEMS SHALL BE INSTALLED AS SHOWN OR NOTED IN THESE PLANS.
- PLANT TEMPORARY SEEDING AND MULCHING IN ALL AREAS THAT SHALL BE INACTIVE FOR 14 DAYS OR MORE. ALL DISTURBED AND ERODED EARTH SHALL BE REGRADED AND SEEDED WITHIN 7 DAYS WITH SEEDING, AS DEFINED ON THE TEMPORARY SEEDING TABLE WITHIN THESE PLANS, TO ESTABLISH STABILITY AND PROVIDE SEDIMENT CONTROL. WHERE POSSIBLE, TEMPORARY SEEDING GROWTH SHALL NOT BE MOWED UNTIL IT HAS GONE TO SEED FOR 1 YEAR.
- PERMANENT VEGETATION SHALL BE INSTALLED WITHIN 7 DAYS AT THE COMPLETION OF ANY GRADED AREAS, WEATHER PERMITTING.
- PRIOR TO THE TIME THAT DRAINAGE DIVERTS TO INLETS, INLET SEDIMENT FILTERS SHALL BE INSTALLED AT ALL INLET STRUCTURES TO KEEP PIPING SYSTEMS FREE OF SILTATION.
- SILT BARRIERS SHALL BE INSTALLED AROUND ALL EXISTING AND NEW STORM INLETS, CATCH BASINS, YARD DRAINS, INSTALL ROCK CHECK DAMS FOR HEADWALL INLETS FOR STORM WATER POLLUTION PREVENTION.
- STORM WATER POLLUTION PREVENTION MEASURES SHALL BE INSTALLED AROUND ALL DIRT OR TOPSOIL STOCKPILES AND OTHER TEMPORARILY DISTURBED AREAS AS SHOWN ON THESE PLANS AND AS DIRECTED BY THE ENGINEER.
- CONTRACTOR SHALL INSPECT ALL SWPP MEASURES DAILY AND LOGGED BY THE CONTRACTOR FOR INSPECTION, LOGGING SHALL BE WEEKLY AND AFTER EVERY 1/2" RAINFALL EVENT. REPAIR AS NECESSARY TO PREVENT EROSION. SILTATION SHALL BE REMOVED FROM AREAS WHERE FAILURES HAVE OCCURRED AND CORRECTIVE ACTION TAKEN WITHIN 24 HOURS TO MAINTAIN ALL SWPP.
- SILT BARRIERS, CONSTRUCTION ENTRANCES, AND SILT PERIMETER CONTROLS SHALL REMAIN IN PLACE UNTIL A GOOD STAND OF GRASS HAS BEEN OBTAINED AND/OR PAVING OPERATIONS ARE COMPLETE. CONTRACTOR SHALL KEEP SILT FROM ENTERING ANY STORM DRAINAGE SYSTEM. ONCE SITE HAS BEEN COMPLETELY STABILIZED, ANY SILT IN PIPES AND DRAINAGE SWALES SHALL BE REMOVED WITHIN 10 DAYS.
- TEMPORARY SEDIMENTATION AND STORM WATER POLLUTION PREVENTION MEASURES MUST BE INSPECTED AND AFTER 1/2" RAIN EVENTS.
- UTILITY COMPANIES MUST COMPLY WITH ALL STORM WATER POLLUTION PREVENTION MEASURES AS DEFINED ON THE STORM WATER POLLUTION PREVENTION PLANS, DETAILS AND NOTES.
- ALL EXISTING WATER COURSES WITHIN THE PROJECT LIMITS SHALL BE TEMPORARILY PROTECTED DURING LAND CLEARING AND GRADING OPERATIONS. SOILS WITHIN 50 FEET OF SAID WATER COURSES SHALL BE STABILIZED WITHIN 2 DAYS OF THE INITIAL CLEARING / GRADING OPERATION AS SHOWN ON PLANS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL SEDIMENTATION AND STORM WATER POLLUTION PREVENTION ITEMS AT ALL TIMES.
- DUST CONTROL SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, IF POSSIBLE GRADING SHALL BE DONE BY PHASING. IF PHASING IS NOT AN OPTION, DUST SHALL BE CONTROLLED WITH WATER DURING EARTHWORK. AFTER EARTHWORK OPERATIONS, THE EXPOSED SOILS SHALL BE COVERED WITH STRAW OR MULCH UNTIL SEEDED. SEE DETAIL WITHIN THESE PLANS. OIL IS NOT TO BE USED AS A DUST SUPPRESSANT.
- ANY DISCHARGE OF PETROLEUM OR PETROLEUM PRODUCTS OF LESS THAN 25 GALLONS ONTO A PERVIOUS SURFACE SHALL BE LEGALLY REMOVED AND PROPERLY TREATED OR PROPERLY DISPOSED OF, OR OTHERWISE REMEDIATED, SO THAT NO CONTAMINATION FROM THE DISCHARGE REMAINS ON-SITE.
- IN THE EVENT OF A LARGE PETROLEUM SPILL (25 OR MORE GALLONS) CONTRACTOR MUST CONTACT THE OHIO EPA, THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE (LEPC) WITHIN 30 MINUTES OF A SPILL OF 25 OR MORE GALLONS.
- CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT FACILITY SHALL BE UTILIZED, IF CONDITIONS ARE SUCH THAT MUD IS COLLECTING ON VEHICLE TIRES, THE TIRES MUST BE CLEANED BEFORE THE VEHICLES ENTER THE PUBLIC ROADWAY. THE SITE ENTRANCES SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING OR FLOW OF MUD ONTO THE PUBLIC RIGHT-OF-WAY. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO THE ROADWAY MUST BE REMOVED PROMPTLY.
- IF NECESSARY, THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY'S FORCES AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL FEES AND CHARGES.
- IF NECESSARY, ELECTRICAL, TELEPHONE, CABLE, WATER, FIBER OPTIC CABLE AND/OR GAS LINES NEEDING TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE AFFECTED UTILITY COMPANY. ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY IS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICE. CONTRACTOR SHALL PAY CLOSE ATTENTION TO EXISTING UTILITIES WITHIN ANY ROAD RIGHT OF WAY DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR PLACING AND MAINTAINING CONSTRUCTION FENCE, SIGNS, ETC. TO WARN AND KEEP PEOPLE OFF SITE FOR THE DURATION OF THE PROJECT.
- IF ENCOUNTERED DURING SITE REDEVELOPMENT, ANY OIL/GAS WELLS OR MINE SHAFTS MUST BE PROPERLY ABANDONED, VAULTED AND VENTED IN ACCORDANCE WITH CURRENT REGULATIONS AND SPECIFICATIONS OF ALL GOVERNING AUTHORITIES
- 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.
- THE FOLLOWING STORM WATER POLLUTION PREVENTION AND SEDIMENT CONTROL MEASURES WHICH WILL BE USED ON THIS SITE INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING :
  - SILT FENCE
  - CONSTRUCTION ENTRANCE

**ADDITIONAL CONSTRUCTION SITE POLLUTION CONTROLS**

- CONSTRUCTION PERSONNEL INCLUDING SUBCONTRACTORS WHO MAY USE OR HANDLE HAZARDOUS OR TOXIC MATERIALS, SHALL BE MADE AWARE OF THE FOLLOWING GENERAL GUIDELINES REGARDING DISPOSAL AND HANDLING OF HAZARDOUS AND CONSTRUCTION WASTES:
  - PREVENT SPILLS
  - USE PRODUCTS UP
  - FOLLOW LABEL DIRECTIONS FOR DISPOSAL
  - REMOVE LIDS FROM EMPTY BOTTLES AND CANS WHEN DISPOSING IN TRASH
  - RECYCLE WASTES WHENEVER POSSIBLE
  - DONT POUR INTO WATERWAYS, STORM DRAINS OR ONTO THE GROUND
  - DONT POUR DOWN THE SINK, DOOR DRAIN OR SEPTIC TANKS
  - DONT BURY CHEMICALS OR CONTAINERS
  - DONT BURN CHEMICALS OR CONTAINERS
  - DONT MIX CHEMICALS TOGETHER
- CONTAINERS SHALL BE PROVIDED FOR THE PROPER COLLECTION OF ALL WASTE MATERIAL INCLUDING CONSTRUCTION DEBRIS, TRASH, PETROLEUM PRODUCTS AND ANY HAZARDOUS MATERIALS USED ON-SITE. CONTAINERS SHALL BE COVERED AND NOT LEAKING. ALL WASTE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THAT MATERIAL. CONSTRUCTION DEMOLITION AND DEBRIS (CD&D) WASTE MUST BE DISPOSED OF AT AN OHIO EPA APPROVED CD&D LAND FILL.
- NO CONSTRUCTION RELATED WASTE MATERIALS ARE TO BE BURIED ON-SITE, BY EXCEPTION, CLEAN FILL (BRICKS, HARDENED CONCRETE, SOIL) MAY BE UTILIZED IN A WAY WHICH DOES NOT ENCROACH UPON NATURAL WETLANDS, STREAMS OR PLAINS OR RESULT IN THE CONTAMINATION OF WATERS OF THE STATE.
- HANDLING CONSTRUCTION CHEMICALS : MIXING, PUMPING, TRANSFERRING OR OTHER HANDLING OF CONSTRUCTION CHEMICALS SUCH AS FERTILIZER, LIME, ASPHALT, CONCRETE DRYING COMPOUNDS, AND ALL OTHER POTENTIALLY HAZARDOUS MATERIALS SHALL BE PERFORMED IN AN AREA AWAY FROM ANY WATERCOURSE, DITCH OR STORM DRAIN.
- EQUIPMENT FUELING AND MAINTENANCE, OIL CHANGING, ETC., SHALL BE PERFORMED AWAY FROM WATERCOURSES, DITCHES OR STORM DRAINS, IN AN AREA DESIGNATED FOR THAT PURPOSE. THE DESIGNATED AREA SHALL BE EQUIPPED FOR RECYCLING OIL AND CATCHING SPILLS. SECONDARY CONTAINMENT SHALL BE PROVIDED FOR ALL FUEL OIL STORAGE TANKS. THESE AREAS MUST BE INSPECTED EVERY SEVEN DAYS AND WITHIN 24 HRS. OF A 0.5 INCH OR GREATER RAIN EVENT TO ENSURE THERE ARE NO EXPOSED MATERIALS WHICH WOULD CONTAMINATE STORM WATER. SITE OPERATORS MUST BE AWARE THAT SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) REQUIREMENTS MAY APPLY. AN SPCC PLAN IS REQUIRED FOR SITES WITH ONE SINGLE ABOVE GROUND TANK OF 660 GALLONS OR MORE, ACCUMULATIVE ABOVE GROUND STORAGE OF 1330 GALLONS OR MORE, OR 42,000 GALLONS OF UNDERGROUND STORAGE. CONTAMINATED SOILS MUST BE DISPOSED OF IN ACCORDANCE WITH ITEM 8.
- CONCRETE WASH WATER SHALL NOT BE ALLOWED TO FLOW TO STREAMS, DITCHES, STORM DRAINS, OR ANY OTHER WATER CONVEYANCE. A SUMP OR PIT WITH NO POTENTIAL FOR DISCHARGE SHALL BE CONSTRUCTED IF NEEDED TO CONTAIN CONCRETE WASH WATER, FIELD TILE OR OTHER SUBSURFACE DRAINAGE STRUCTURES WITHIN 10 FT. OF THE SUMP SHALL BE CUT AND PLUGGED. FOR SMALL PROJECTS, TRUCK CHUTES MAY BE RINSED AWAY FROM ANY WATER CONVEYANCES.
- SPILL REPORTING REQUIREMENTS : SPILLS ON PAVEMENT SHALL BE ABSORBED WITH SAWDUST OR KITTY LITTER AND DISPOSED OF WITH THE TRASH AT A LICENSED SANITARY LAND FILL. HAZARDOUS OR INDUSTRIAL WASTES SUCH AS MOST SOLVENTS, GASOLINE, OIL-BASED PAINTS, AND CEMENT CURING COMPOUNDS REQUIRE SPECIAL HANDLING. SPILLS SHALL BE REPORTED TO THE OHIO EPA, SPILLS OF 25 GALLONS OR MORE OF PETROLEUM PRODUCTS SHALL BE REPORTED TO THE OHIO EPA, THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE WITHIN 30 MINUTES OF THE DISCOVERY OF THE RELEASE. ALL SPILLS WHICH CONTACT WATERS OF THE STATE MUST BE REPORTED TO THE OHIO EPA.
- CONTAMINATED SOILS : IF SUBSTANCES SUCH AS OIL, DIESEL FUEL, HYDRAULIC FLUID, ANTIFREEZE, ETC. ARE SPILLED, LEAKED, OR RELEASED ONTO THE SOIL, THE SOIL SHOULD BE DUG UP AND DISPOSED OF AT LICENSED SANITARY LAND FILL OR OTHER APPROVED PETROLEUM CONTAMINATED SOIL REMEDIATION FACILITY (NOT A CONSTRUCTION/DEMOLITION DEBRIS LAND FILL), NOTE THOSE STORM WATER RUNOFFS ASSOCIATED WITH CONTAMINATED SOILS ARE NOT BE AUTHORIZED UNDER THE OHO EPA GENERAL STORM WATER PERMIT ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- OPEN BURNING : NO OPEN BURNING.
- OTHER AIR PERMITTING REQUIREMENTS : CERTAIN ACTIVITIES ASSOCIATED WITH CONSTRUCTION WILL REQUIRE AIR PERMITS INCLUDING BUT NOT LIMITED TO: MOBILE CONCRETE BATCH PLANTS, MOBILE ASPHALT PLANTS, CONCRETE CRUSHERS, LARGE GENERATORS, ETC. THESE ACTIVITIES WILL REQUIRE SPECIFIC OHIO EPA AIR PERMITS FOR INSTALLATION AND OPERATION. OPERATORS MUST SEEK AUTHORIZATION FROM THE CORRESPONDING DISTRICT OF THE EPA. FOR DEMOLITION OF ALL COMMERCIAL SITES, A NOTIFICATION FOR RESTORATION AND DEMOLITION MUST BE SUBMITTED TO THE OHIO EPA TO DETERMINE IF ASBESTOS CORRECTIVE ACTIONS ARE REQUIRED.
- PROCESS WASTE WATER/LEACHATE MANAGEMENT : EPA'S CONSTRUCTION GENERAL PERMIT ONLY ALLOWS THE DISCHARGE OF STORM WATER AND DOES NOT INCLUDE OTHER WASTE STREAMS/DISCHARGES SUCH AS VEHICLE AND/OR EQUIPMENT WASHING, ON-SITE SEPTIC LEACHATE CONCRETE WASH OUTS, WHICH ARE CONSIDERED PROCESS WASTEWATERS. ALL PROCESS WASTEWATERS MUST BE COLLECTED AND PROPERLY DISPOSED AT AN APPROVED DISPOSAL FACILITY. IN THE EVENT, LEACHATE OR SEPTAGE IS DISCHARGED; IT MUST BE ISOLATED FOR COLLECTION AND PROPER DISPOSAL AND CORRECTIVE ACTIONS TAKEN TO ELIMINATE THE SOURCE OF WASTE WATER.
- A PERMIT TO INSTALL (PTI) IS REQUIRED PRIOR TO THE CONSTRUCTION OF ALL CENTRALIZED SANITARY SYSTEMS, INCLUDING SEWER EXTENSIONS, AND SEWERAGE SYSTEMS (EXCEPT THOSE SERVING ONE, TWO, AND THREE FAMILY DWELLINGS) AND POTABLE WATER LINES. PLANS MUST BE SUBMITTED AND APPROVED BY THE OHIO EPA. ISSUANCE OF THE OHIO EPA CONSTRUCTION GENERAL STORM WATER PERMIT DOES NOT AUTHORIZE THE INSTALLATION OF ANY SEWERAGE SYSTEM WHERE THE OHIO EPA HAS NOT APPROVED A PTI.
- PLEASE REFER TO THE LOCAL JURISDICTION STORM WATER MANAGEMENT MANUAL, CURRENT EDITION, FOR ADDITIONAL INFORMATION.
- WASTES GENERATED BY CONSTRUCTION ACTIVITIES (I.E. CONSTRUCTION MATERIALS SUCH AS PAINTS, SOLVENTS, FUELS, CONCRETE, WOOD, ETC) MUST BE DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATIONS. HAZARDOUS AND TOXIC SUBSTANCES ARE USED ON VIRTUALLY ALL CONSTRUCTION SITES. GOOD MANAGEMENT OF THESE SUBSTANCES IS ALWAYS NEEDED.

**CONSTRUCTION SEQUENCE**

DURING PRECONSTRUCTION MEETING ALL EROSION & SEDIMENT CONTROL FACILITIES & PROCEDURES SHALL BE DISCUSSED.

- INSTALL CONSTRUCTION ENTRANCE AS DETAILED ON PLANS.
- STAKE AND/OR FLAG LIMITS OF CLEARING.
- CLEARING & GRUBBING, AS NECESSARY, FOR INSTALLATION OF PERIMETER CONTROLS. INSTALL SILT PERIMETER CONTROLS AS SHOWN ON PLANS. SILT PERIMETER CONTROLS SHALL BE INSTALLED LEVEL, ALONG THE CONTOURS, WITH ENDS TURNED UPSLOPE TO PREVENT CONCENTRATED FLOW AT THE SILT PERIMETER CONTROLS.
- CLEARING & GRUBBING THE REMAINING SITE AS NECESSARY. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR REUSE.
- BEGIN FILLING & GRADING AS REQUIRED TO REACH SUBGRADE.
- UTILIZE DUST CONTROL MEASURES AS REQUIRED TO MINIMIZE AIR-BORNE POLLUTION BY METHODS APPROVED BY THE AUTHORIZING EPA OFFICE.
- SPREAD TOPSOIL OVER ALL DISTURBED AREAS. SEED AND MULCH ALL DISTURBED AREAS.
- COMPLETE SITEWORK AND FINAL CLEAN-UP. RESEED ANY AREAS THAT MAY REQUIRE ATTENTION IMMEDIATELY. NOTE THAT LAWN AREAS WILL NOT BE DEEMED STABLE UNTIL A MINIMUM 80% VEGETATIVE DENSITY HAS BEEN ACHIEVED.
- MAINTAIN EROSION & SEDIMENTATION CONTROL MEASURES UNTIL THE SITE HAS BEEN COMPLETELY STABILIZED. ALL AREAS OF VEGETATIVE SURFACE, WHETHER PERMANENT OR TEMPORARY, SHALL BE CONSIDERED TO BE IN PLACE AND FUNCTIONAL WHEN THE REQUIRED UNIFORM RATE OF COVERAGE (80%) IS OBTAINED.
- REMOVE SEDIMENT CONTROLS.

\*\* YEARLY INSPECTIONS, COMPLETED BY MAY 31ST OF EACH YEAR, MUST BE DOCUMENTED. COPIES SHOULD BE SENT TO THE LOCAL CITY AS WELL AS THE THE LOCAL COUNTY SOIL AND WATER CONSERVATION DISTRICT.

ONLY APPROVED SIGNED PLANS BY THE LOCAL SWCD ARE TO BE USED FOR CONSTRUCTION.

CONTRACTORS INSPECTOR SHALL BE A QUALIFIED INDIVIDUAL. SITE INSPECTIONS SHALL BE DONE WEEKLY AND WITHIN 24 HRS AFTER EVERY RAINFALL EVENT EXCEEDING 1/2" OF RAINFALL. ALL NECESSARY REPAIRS SHOULD BE IMPLEMENTED IMMEDIATELY AFTER SUCH INSPECTIONS.

CONTRACTOR'S INSPECTOR SHALL BE RESPONSIBLE FOR PREPARING AND SIGNING WEEKLY AND ALL INTERMEDIATE EROSION CONTROL INSPECTION REPORTS AFTER EVERY INSPECTION. SUCH REPORTS SHALL BE MADE AVAILABLE TO OWNER, ENGINEER AND CITY /STATE OFFICIALS UPON THEIR REQUEST.

REPORTS SHALL BE KEPT FOR 3 YEARS AFTER TERMINATION OF THE CONSTRUCTION ACTIVITIES.

CONTRACTOR MAY SUBMIT A WAIVER REQUEST TO THE STATE EPA FOR A REDUCTION TO MONTHLY INSPECTIONS IF THE SITE WILL BE STABILIZED DORMANT SITE FOR A LONG PERIOD.

ONLY A QUALIFIED INSPECTION PERSONNEL IS TO PERFORM THE INSPECTIONS.

FOR BMPS THAT REQUIRE REPAIR OR MAINTENANCE - NON SEDIMENT POND BMPS ARE TO BE REPAIRED WITHIN 3 DAYS OF INSPECTION AND SEDIMENT PONDS ARE TO BE REPAIRED OR CLEANED OUT WITHIN 10 DAYS OF INSPECTION.

FOR BMPS THAT DO NOT MEET THE INTENDED FUNCTION, A NEW BMP SHALL BE INSTALLED WITHIN 10 DAYS OF THE INSPECTION.

FOR MISSING BMPS REQUIRED, THE MISSING BMPS SHALL BE INSTALLED WITHIN 10 DAYS OF THE INSPECTION.

**STORM WATER POLLUTION PREVENTION PLAN NARRATIVE**

**PROJECT DESCRIPTION**

DURING HEAVY RAIN EVENTS, OFFSITE RUNOFF FROM THE SOUTHWEST FLOWS THROUGH THE SITE. THE RUNOFF CONCENTRATES INTO AN OPEN CHANNEL WHICH PASSES BETWEEN UNITS 1547 AND 1555 TOWARD CLOVERDALE DRIVE. REACHING CLOVERDALE DRIVE, THE RUNOFF FLOWS EAST ALONG THE ROAD FOR ABOUT 800-FEET BEFORE FLOWING SOUTH TOWARD GEORGIA ROAD (TOWNSHIP HIGHWAY 124).

ON OCCASION, THE UNITS AT THE EAST END OF THE SITE HAVE BEEN FLOODED. THE INTENT OF THE PROJECT IS TO GRADE A SWALE ALONG THE SOUTH SIDE OF THE DEVELOPMENT WHICH WILL CAPTURE THE OFFSITE WATER AND DIVERT IT AWAY FROM THE HOUSING UNITS.

**PROJECT COMPLETION STATISTICS**

TYPE OF SITE: MULTIFAMILY RESIDENTIAL  
 PROJECT AREA: 3.75 ACRES  
 TOTAL DISTURBED AREA: APPROX. 3.75 ACRES

EXISTING LAND USE FOR THE SITE IS RESIDENTIAL, LOW INCOME HOUSING.

ESTIMATED PRE-CONSTRUCTION PERVIOUS AREA: 3.75 ACRES  
 ESTIMATED PRE-CONSTRUCTION PERVIOUS PERCENT: 100%  
 PRE-CONSTRUCTION RUN-OFF COEFFICIENT: 0.35

PROPOSED LAND USE AND IMPERVIOUS AREA WILL NOT CHANGE. SCOPE WILL BE LIMITED TO RE-GRADING THE LAWN AREAS TO RESOLVE DRAINAGE ISSUES.

ESTIMATED POST-CONSTRUCTION PERVIOUS AREA: 3.75 ACRES  
 ESTIMATED POST-CONSTRUCTION PERVIOUS PERCENT: 100%  
 POST-CONSTRUCTION RUN-OFF COEFFICIENT: 0.35

**PROJECT LOCATION:**

LATITUDE                      LONGITUDE  
 41.451792°                      -81.087143°

**EXISTING SITE SOIL TYPES:**

WDB: WADSWORTH SILT LOAM, 2 TO 6 PERCENT SLOPES, HYDROLOGIC SOIL GROUP D.

REFERENCE: USDA NATIONAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY.

**WETLAND INFORMATION:**

A POTENTIAL EMERGENT WETLAND HAS BEEN IDENTIFIED NEAR THE START OF THE SWALE AT THE WEST END OF THE PROJECT. FENCING WILL BE INSTALLED TO PROTECT THE AREA.

**FIRST AND SUBSEQUENT RECEIVING STREAM:**

INITIAL RECEIVING WATER IS AN UNNAMED TRIBUTARY AND THE SUBSEQUENT RECEIVING WATER IS THE EAST BRANCH CUYAHOGA RIVER.

WATERSHED: CUYAHOGA

**CONTROL RATIONAL AND DESCRIPTION**

THE GENERAL SCOPE OF THE PROJECT IS TO RE-GRADE THE LAWN AREA AT THE REAR OF THE HOUSING UNITS TO RESOLVE DRAINAGE ISSUES. THE PROPOSED PROJECT WILL NOT CHANGE THE SITE IMPERVIOUS AREA OR RUNOFF CHARACTERISTICS. A SWALE WILL BE CONSTRUCTED ALONG THE BACK SIDE OF THE DEVELOPMENT TO KEEP OFFSITE WATER FROM FLOODING THE UNITS DURING HEAVY STORM EVENTS. THE SWALE WILL BE VEGETATED AND WILL INCLUDE ROCK CHECK DAMS TO CONTROL VELOCITY, MINIMIZE EROSION, AND IMPROVE WATER QUALITY.

**OWNER CONTACT:**

OWNER:  
 GEAUGA METROPOLITAN HOUSING AUTHORITY  
 385 CENTER STREET  
 CHARDON, OHIO 44024

PHONE: 440-286-7413      FAX: 440-286-7496

**ANTICIPATED TIMING:**

CONSTRUCTION BEGIN: October 1, 2018  
 CONSTRUCTION COMPLETE: December 31, 2018

CONTRACTOR: T.B.D. \_\_\_\_\_  
 CONTACT: \_\_\_\_\_  
 PHONE NUMBER: \_\_\_\_\_

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



DESCRIPTION	DATE	REV.

**CLOVERDALE ESTATES DRAINAGE**  
 GEAUGA METROPOLITAN HOUSING AUTHORITY  
 385 CENTER STREET, CHARDON, OHIO 44042

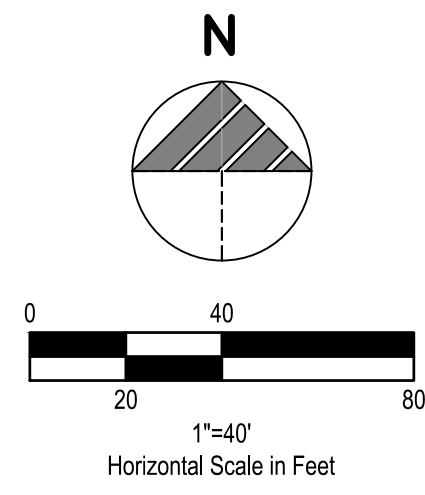
**STORMWATER POLLUTION PREVENTION**  
**GENERAL NOTES**

ISSUED FOR:	
PERMIT	8/30/18
BID	8/30/18
CONSTRUCTION	10/25/18
RECORD	--

PROJECT MANAGER	DESIGNER
RDM	TRS

JOB NO.  
**2018359.02**

**SWP-1**



**BENCHMARK:**  
 BENCHMARK 1  
 "M" IN MUELLER ON HYDRANT  
 NORTHING: 653715.627  
 EASTING: 2355815.218  
 ELEVATION: 1192.56

Underground Utilities

2 Working Days  
 Before You Dig  
 Call 800-362-2764 (Toll Free)  
 Ohio Utilities Protection Service

Non-members  
 Must Be Called Directly

Call 800-925-0988 (Toll Free)  
 Oil & Gas Producers Utility Protection Service

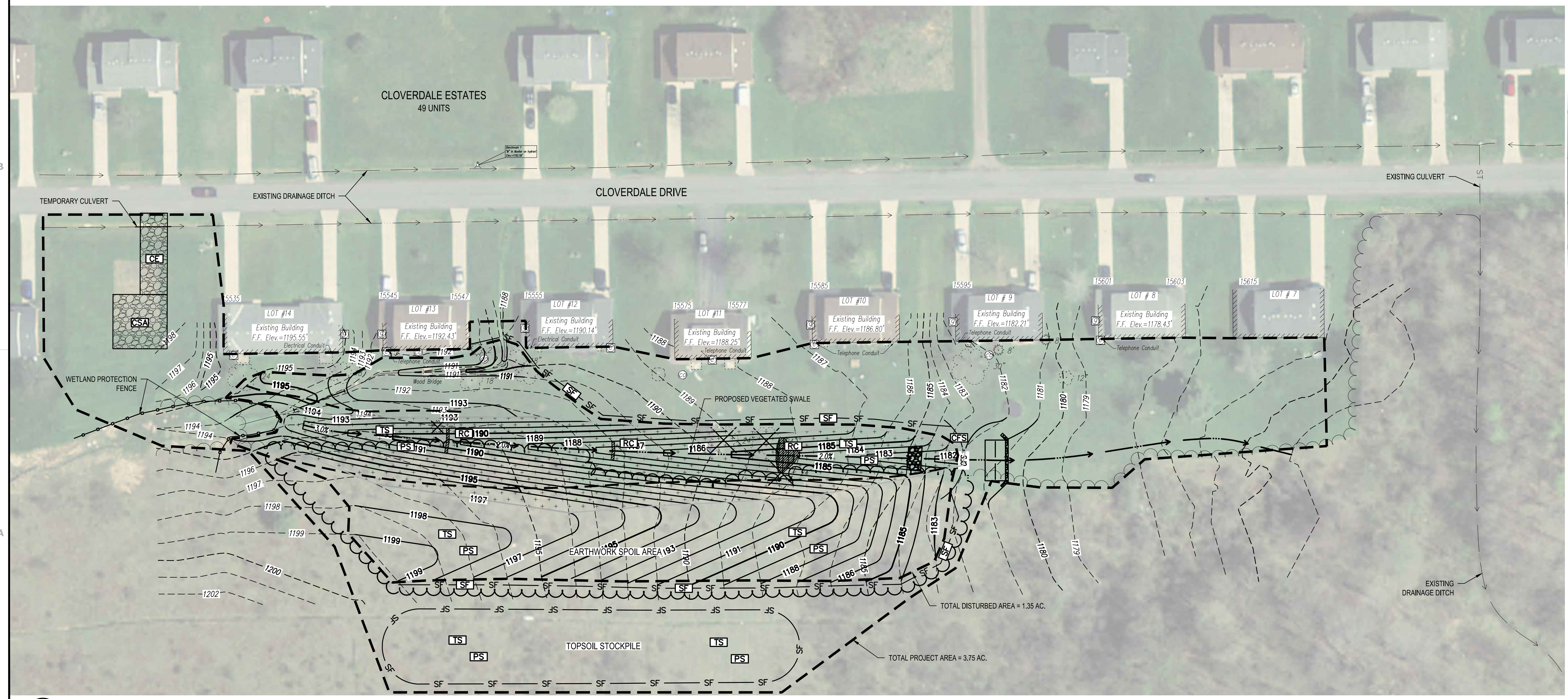
- LEGEND:**
- EXISTING ELECTRIC METER
  - EXISTING FIRE HYDRANT
  - EXISTING GAS METER
  - EXISTING CLEANOUT
  - EXISTING CONCRETE PAD/AREA/SIDEWALK
  - EXISTING WOOD BRIDGE
  - EXISTING TREE LINE
  - EXISTING SWALE
  - ROCK
  - BUSH/SHRUB
  - DECIDUOUS TREE
  - CONSTRUCTION KEYNOTE
  - PROPOSED SWALE
  - EROSION CONTROL MATTING

- GENERAL SHEET NOTES**
1. REFER TO SHEET C-001 FOR GENERAL NOTES AND LEGEND INFORMATION.
  2. INSTALL SILT FENCE AND PERIMETER CONTROLS PRIOR TO REMOVING VEGETATION AND STRIPPING TOPSOIL.
  3. SALVAGE AND STOCKPILE TOPSOIL FOR RE-SPREADING ON DISTURBED AREAS.

- SWPP KEYNOTES**
- CONSTRUCTION ENTRANCE
  - CONSTRUCTION STAGING AREA
  - SILT FENCE
  - COMPOST FILTER SOCK
  - ROCK CHECK DAM
  - TEMPORARY SEEDING
  - PERMANENT SEEDING

- LEGEND**  
 (SEE SHEET C-001 FOR GENERAL LEGEND)
- PROPOSED SILT FENCE. SEE DETAIL A5, SHEET SWP-4 FOR ADDITIONAL INFORMATION.
  - COMPOST FILTER SOCK. SEE DETAIL A4, SHEET SWP-4 FOR ADDITIONAL INFORMATION.
  - WETLAND PROTECTIVE FENCING. 4-FT. HIGH ORANGE, PLASTIC CONSTRUCTION FENCING WITH POSTS AT 4' TO 6' O.C.
  - STONE CONSTRUCTION ENTRANCE. SEE DETAIL A3, SHEET SWP-4 FOR ADDITIONAL INFORMATION.

REV.	DATE	DESCRIPTION



**CLOVERDALE ESTATES DRAINAGE**  
 GEauga METROPOLITAN HOUSING AUTHORITY  
 385 CENTER STREET, CHARDON, OHIO 44042

**STORMWATER POLLUTION PREVENTION PLAN**

ISSUED FOR:	
PERMIT	8/30/18
BID	8/30/18
CONSTRUCTION	10/25/18
RECORD	--

PROJECT MANAGER	DESIGNER
RDM	TRS

JOB NO.  
**2018359.02**

**SWP-2**

Drawing Name: C:\2018\2018359\02 - Cloverdale Drainage Swales\Drawings\Construction\2018359\02 Drainage Ditch  
 CDs.dwg  
 October 24, 2018 1:52 PM - tsaurier

**A1** SWPP PLAN  
 1" = 40'



- 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 FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH OVERLAP, AND SECURELY SEALED.
  - 8) POSTS SHALL BE A MINIMUM OF 5 FEET LONG, 2 INCHES IN DIAMETER AND SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND. WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET.
  - 9) THE SILT FENCE SHALL BE PLACED IN A TRENCH CUT A MINIMUM OF 6 INCHES DEEP. THE TRENCH SHALL BE CUT WITH A TRENCHER, CABLE LAYING MACHINE, OR OTHER SUITABLE DEVICE WHICH WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
  - 10) THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWNSLOPE SIDE OF THE GEOTEXTILE AND SO THAT 8 IN. OF CLOTH ARE BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6 IN. DEEP TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED.
  - 11) WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS.
  - 12) THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
  - 13) SEAMS BETWEEN SECTION OF SILT FENCE SHALL BE OVERLAPPED WITH THE END STAKES OF EACH SECTION WRAPPED TOGETHER BEFORE DRIVING INTO THE GROUND.
  - 14) 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.

**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.

REV.	DATE	DESCRIPTION

COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

MATERIAL TYPE	3 mil HDPE	5 mil HDPE	5 mil HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (MFPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIO-DEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
MESH OPENING	3/8"	3/8"	3/8"	3/8"	1/8"
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202 PSI
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS

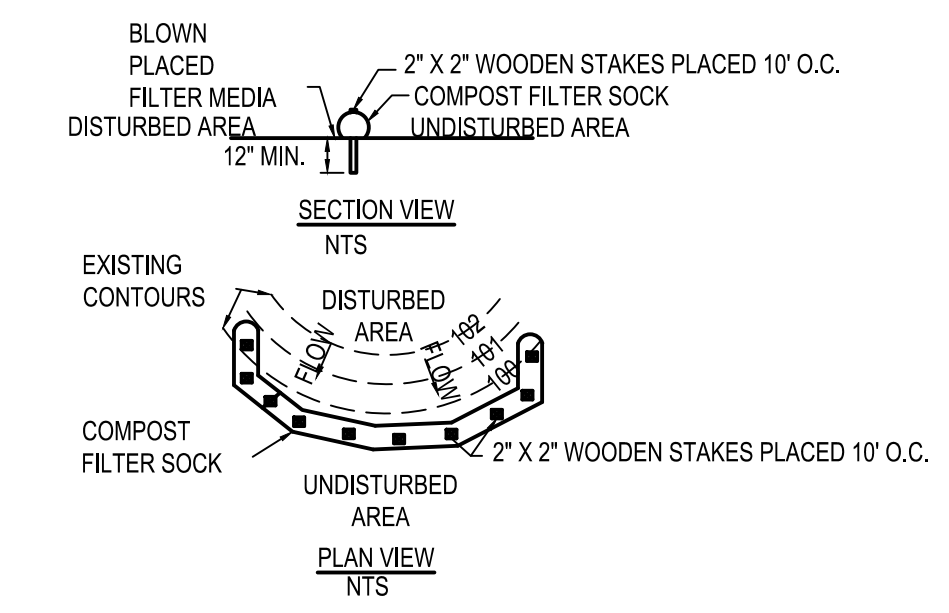
TWO-PLY SYSTEMS

INNER CONTAINMENT NETTING	HDPE BIAXIAL NET
	CONTINUOUSLY WOUND FUSION-WELDED JUNCTURES
	3/4" X 3/4" MAX. APERTURE SIZE
OUTER FILTRATION MESH	COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER & NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH)
	3/16" MAX. APERTURE SIZE

SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS

COMPOST SHALL MEET THE FOLLOWING STANDARDS:

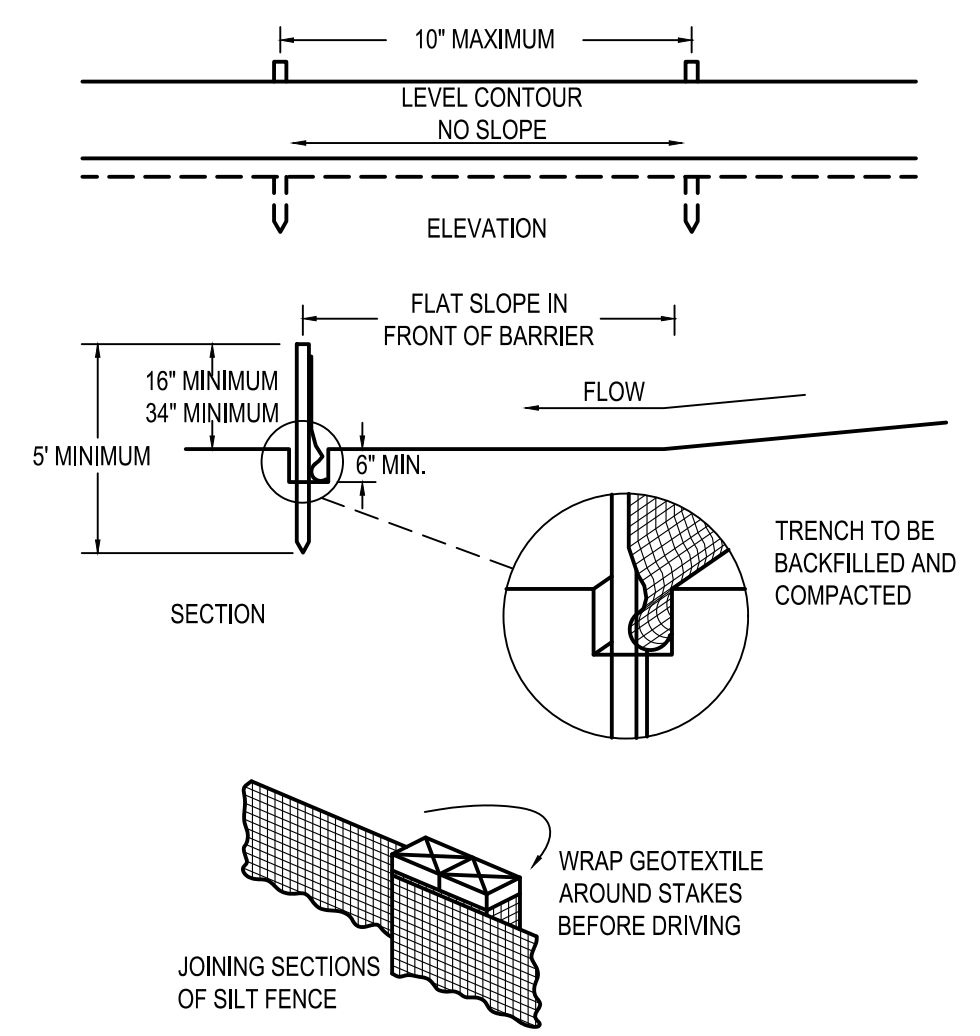
ORGANIC MATTER CONTENT	80% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.0
MOISTURE CONTENT	35% - 55%
PARTICLE SIZE	98% PASS THROUGH 1" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS MAXIMUM



ADAPTED FROM FILTREXX  
 COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT.  
 TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.  
 SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH 1/2 INCH STORM RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

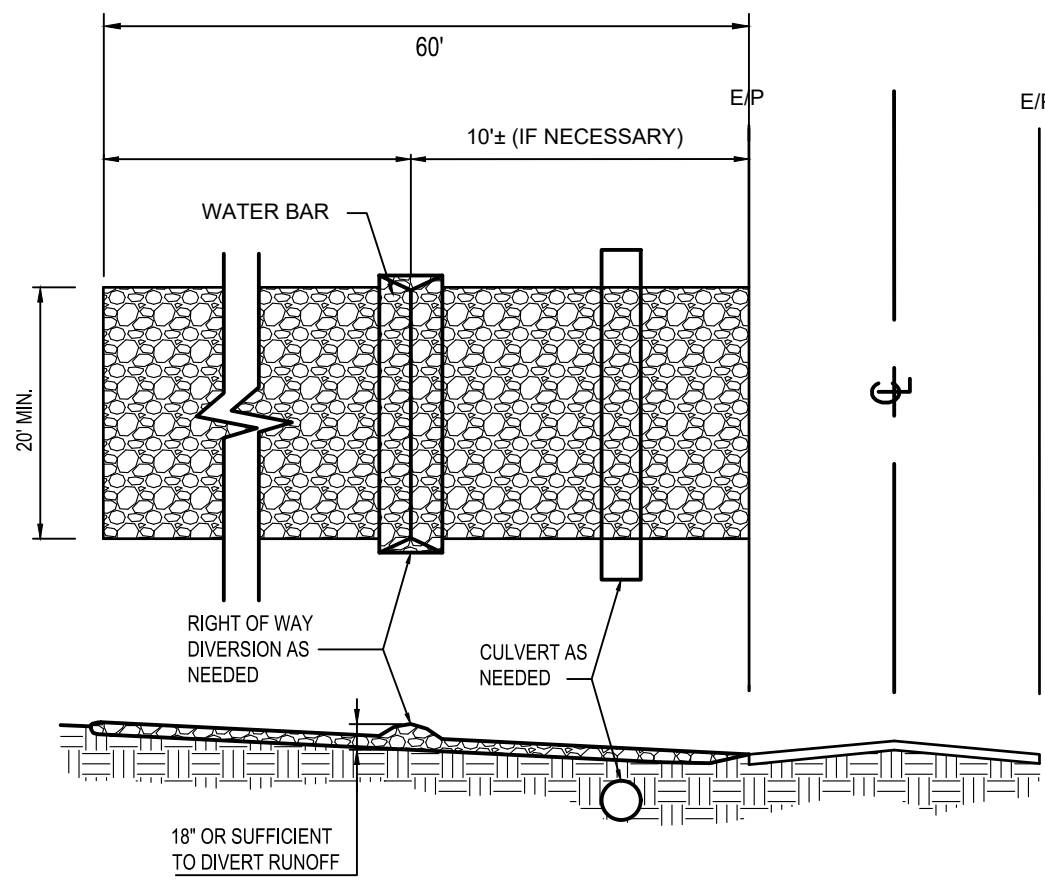
BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.  
 UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.



CRITERIA FOR GEOTEXTILE FABRIC SILT FENCE, PER CURRENT STATE'S DOT SPECIFICATIONS.

FABRIC PROPERTIES	VALUES	TEST METHOD
MINIMUM TENSILE STRENGTH	120 LB. MINIMUM	ASTM D 4632
MINIMUM BURST STRENGTH	200 PSI MINIMUM	
MINIMUM PERMITTIVITY	1x10 <sup>-2</sup> sec <sup>-1</sup>	ASTM D 4491
APPARENT OPENING SIZE	AOS < 0.84 mm	ASTM D 4751
UV EXPOSURE STRENGTH RETENTION	70%	ASTM G 4335
MAXIMUM ELONGATION AT 60 LBS.	50%	ASTM D 4632
MINIMUM PUNCTURE STRENGTH	50 LBS (220N)	ASTM D 4833
MINIMUM TEAR STRENGTH	40 LBS (180N)	ASTM D 4533

- NOTES**
1. STONE SIZE - NO. 2 STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
  2. THE CONSTRUCTION ENTRANCE SHALL COINCIDE WITH THE PROPOSED DRIVE AS SHOWN ON THE PLAN.
  3. PAVEMENT THICKNESS - STONE LAYER SHALL BE 6" THICK FOR STANDARD DUTY ACTIVITY AND 10" THICK FOR HEAVY DUTY ACTIVITY.
  4. DRIVEWAY WIDTH - THE ENTRANCE SHALL BE AT LEAST 20' WIDE. CONTRACTOR SHALL ENSURE ALL VEHICLES UTILIZE THE CONSTRUCTION ENTRANCE UNTIL PAVEMENT IS IN PLACE.
  5. BEDDING-A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL BE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS AND MEET THE SPECIFICATIONS SHOWN BELOW.
  6. CULVERT-A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE OR TO PREVENT RUNOFF FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
  7. WATER BAR - A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES.
  8. MAINTENANCE - TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY. REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
  9. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SHALL BE RESTRICTED FROM MUDDY AREAS.
  10. THE ENTRANCE SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREA IS STABILIZED OR REPLACED WITH A PERMANENT ROADWAY OR ENTRANCE.



**A3** TEMPORARY STABILIZED CONSTRUCTION ENTRANCE  
 N.T.S.

**A4** COMPOST FILTER SOCK  
 N.T.S.

**A5** SILT FENCE  
 N.T.S.

**CLOVERDALE ESTATES DRAINAGE**  
 GEauga METROPOLITAN HOUSING AUTHORITY  
 385 CENTER STREET, CHARDON, OHIO 44042

ISSUED FOR:

PERMIT	8/30/18
BID	8/30/18
CONSTRUCTION	10/25/18
RECORD	--

PROJECT MANAGER	DESIGNER
RDM	TRS

JOB NO.  
**2018359.02**

**SWP-4**

STORMWATER POLLUTION PREVENTION  
 NOTES AND DETAILS