

McDONALDS' DESIGN & BUILD INC.
TEAM SHANK SITE DEVELOPMENT
NAPOLEON, OHIO

INDEX OF SHEETS

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LEGENDS

EXISTING LEGEND

--- 625 --- EXISTING MAJOR CONTOUR

--- 624 --- EXISTING MINOR CONTOUR

X 673.85 EXISTING SPOT ELEVATION

- R/W - RIGHT-OF-WAY

----- EDGE OF PAVEMENT

ST ST EXISTING STORM SEWER

SAN EXISTING SANITARY SEWER

WAT EXISTING WATERLINE

OE OE EXISTING OVERHEAD ELECTRIC

UT EXISTING TELECOMMUNICATIONS

⊙ EXISTING CATCH BASIN

⊙ EXISTING SANITARY MANHOLE

⊙ EXISTING FIRE HYDRANT

⊙ EXISTING WATER VALVE

⊙ EXISTING POWER POLE

⊙101 SOIL BORING

PROPOSED LEGEND

ST ST PROPOSED STORM SEWER

WAT PROPOSED WATERLINE

□ PROPOSED HALF-HIGHT HEADWALL

■ PROPOSED CATCH BASIN

⬮ PROPOSED FIRE HYDRANT

▨ PROPOSED ASPHALT PAVEMENT

▨ PROPOSED CONCRETE PAVEMENT

GRADING LEGEND

--- 625 --- PROPOSED MAJOR CONTOUR

--- 624 --- PROPOSED MINOR CONTOUR

- 0.5% - PROPOSED SLOPE

X 674.00 PROPOSED SPOT ELEVATION

X 674.00 PROPOSED SPOT ELEVATION AT FACE OF CURB
ADD 0.50' FOR TOP OF CURB ELEVATION

→ DRAINAGE FLOW ARROW

EROSION & SEDIMENT CONTROL LEGEND

SF SF PROPOSED SILT FENCE

⊙ PROPOSED STABILIZED CONSTRUCTION ENTRANCE

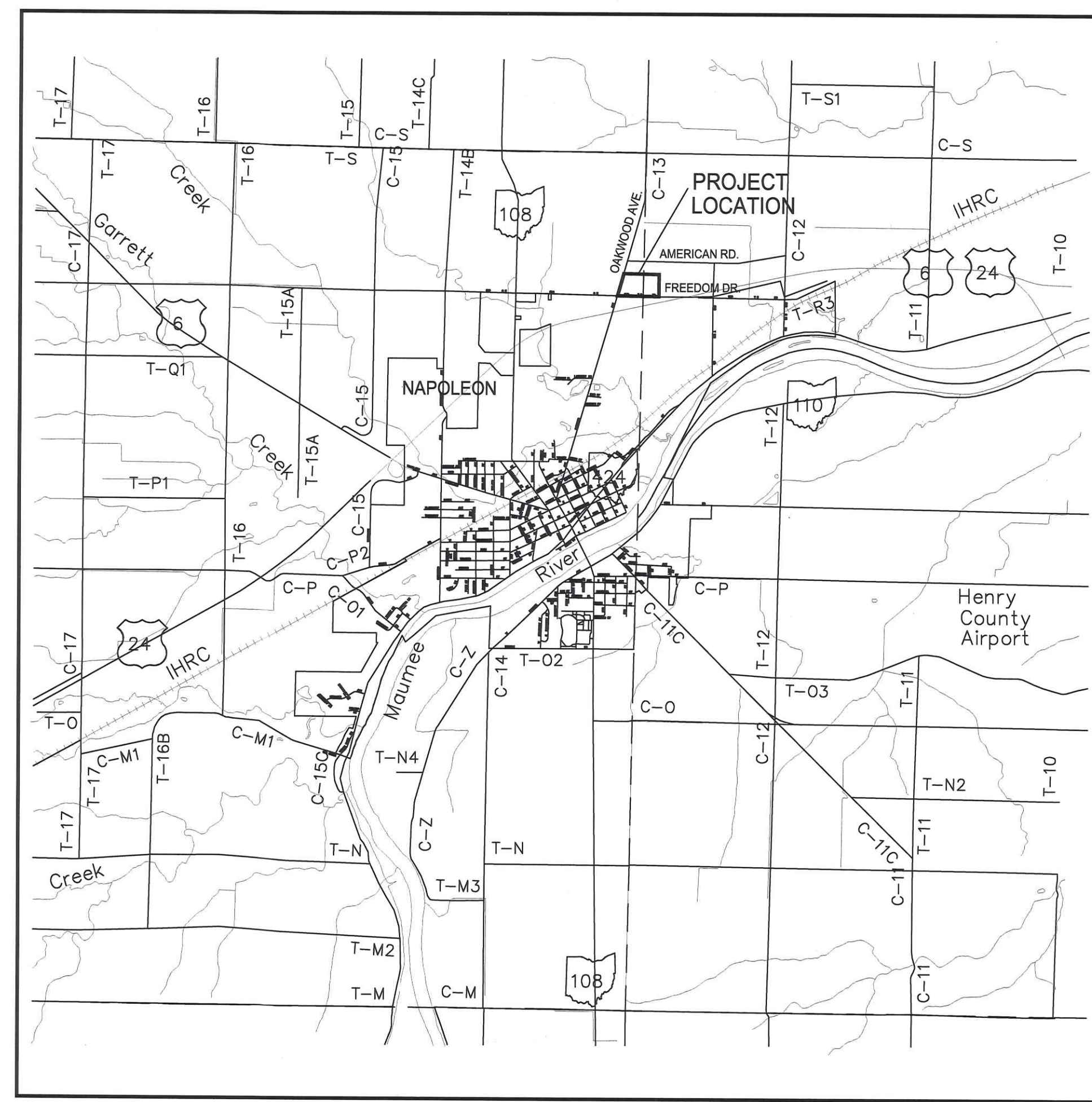
⊙ PROPOSED INLET PROTECTION

⊙ PROPOSED PERMANENT STABILIZATION

--- SOIL TYPE BOUNDARY

ZONING

CURRENT ZONING: I-1 (ENCLOSED INDUSTRIAL)
PROPOSED ZONING: I-1 (ENCLOSED INDUSTRIAL)



LOCATION MAP

SCALE: NONE

STANDARD DRAWINGS

OHIO DEPARTMENT OF TRANSPORTATION

- | | |
|--------|---|
| BP-4.1 | DRIVEWAYS |
| BP-5.1 | CONCRETE CURBS AND COMBINED CURB AND GUTTER |
| HW-2.1 | HALF-HEIGHT HEADWALL DETAIL |
| RM-3.1 | TRAFFIC DIVIDERS |
| RM-5.1 | REMOVABLE STEEL BOLLARDS |

SPECIFICATIONS

ALL MATERIAL AND CONSTRUCTION MUST MEET THE REQUIREMENTS OF THE CITY OF NAPOLEON:

STORM SEWER

THE STANDARDS AND SPECIFICATIONS OF THE CITY OF NAPOLEON
AND THE OHIO ENVIRONMENTAL PROTECTION AGENCY

WATERLINES

THE STANDARDS AND SPECIFICATIONS OF THE CITY OF NAPOLEON
AND THE OHIO ENVIRONMENTAL PROTECTION AGENCY

SANITARY SEWER

THE STANDARDS AND SPECIFICATIONS OF THE CITY OF NAPOLEON
AND THE OHIO ENVIRONMENTAL PROTECTION AGENCY

PAVEMENT

THE STANDARDS AND SPECIFICATIONS OF THE OHIO DEPARTMENT OF TRANSPORTATION

STORM WATER POLLUTION PREVENTION PLAN (SWP3)

A STORM WATER POLLUTION PREVENTION PLAN HAS BEEN PREPARED FOR THIS PROJECT
AND SHALL BE CONSIDERED TO BE A PART OF THE CONSTRUCTION DOCUMENTS.

BENCHMARK

THE VERTICAL DATUM IS BASED ON NAVD88 AS OBSERVED FROM CONTINUALLY OPERATED BASE STATION MANAGED BY OHIO
DEPARTMENT OF TRANSPORTATION.

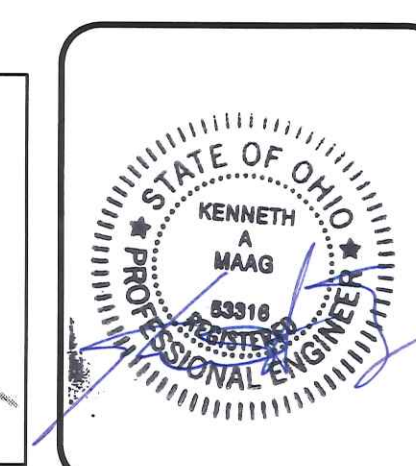
THE COORDINATES ARE REFERENCED TO OHIO STATE PLAN GRID COORDINATES OH-N NAD83 (2011).

SITE BENCHMARK #11
IRON PIN SET SOUTH SIDE OF FREEDOM DR. SOUTH OF PROPOSED BUILDING
N=640550.53 E=1525001.82 ELEV: 679.83

SITE BENCHMARK #12
MAG NAIL SET NORTH SIDE OF FREEDOM DRIVE @ SOUTHEAST CORNER OF PROPERTY
N=640570.97 E=1525604.93 ELEV: 679.23'

LOCATION

LAT. 41° 24' 51.21" N
LONG. 84° 07' 00.84"W



NO.	DATE	DESCRIPTION
REVISIONS		

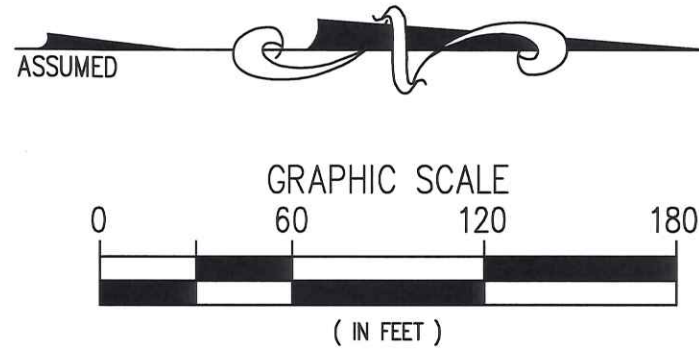
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MEK	KAM
DATE	
4/12/19	
C101	
OF	
JOB NUMBER	
703400-00021	

McDONALDS' DESIGN & BUILD INC.
TEAM SHANK SITE DEVELOPMENT
NAPOLEON, OHIO

POGGEMEYER DESIGN GROUP, INC.
PLANNERS
ENGINEERS
ARCHITECTS
101 CLINTON STREET, SUITE 1300
DEFIANCE, OHIO 43512
(419) 782-3067

COVER SHEET

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STATE OF OHIO
KENNETH
A
MAAB
53318
PROFESSIONAL ENGINEER
EXPIRED 12/31/2015

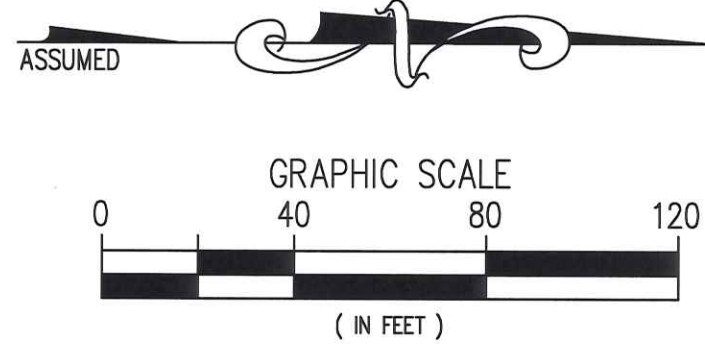
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DATE 4/12/19	
C102 — OF —	
JOB NUMBER 703400-00021	

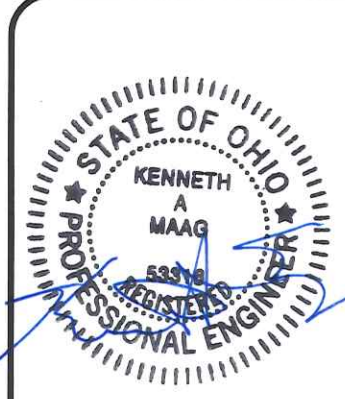
POGGEMEYER DESIGN GROUP, INC.
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EXISTING SITE TOPOGRAPHY AND DEMOLITION PLAN

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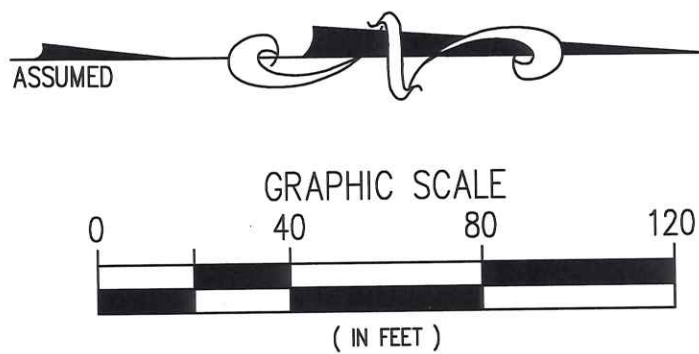
(419) 782-3067

REET, SUITE 1300

101 CLINTON S.

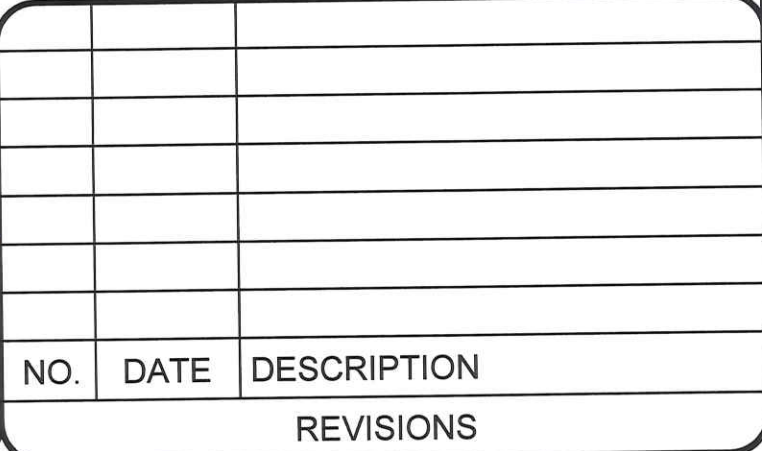
DEFIANCE, OHIO 43512

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10" 304 AGGREGATE PAVEMENT
12" 304 AGGREGATE PAVEMENT
8" CONCRETE PAVEMENT

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JOB NUMBER

SITE DIMENSION UTILITY AND PAVING PLAN

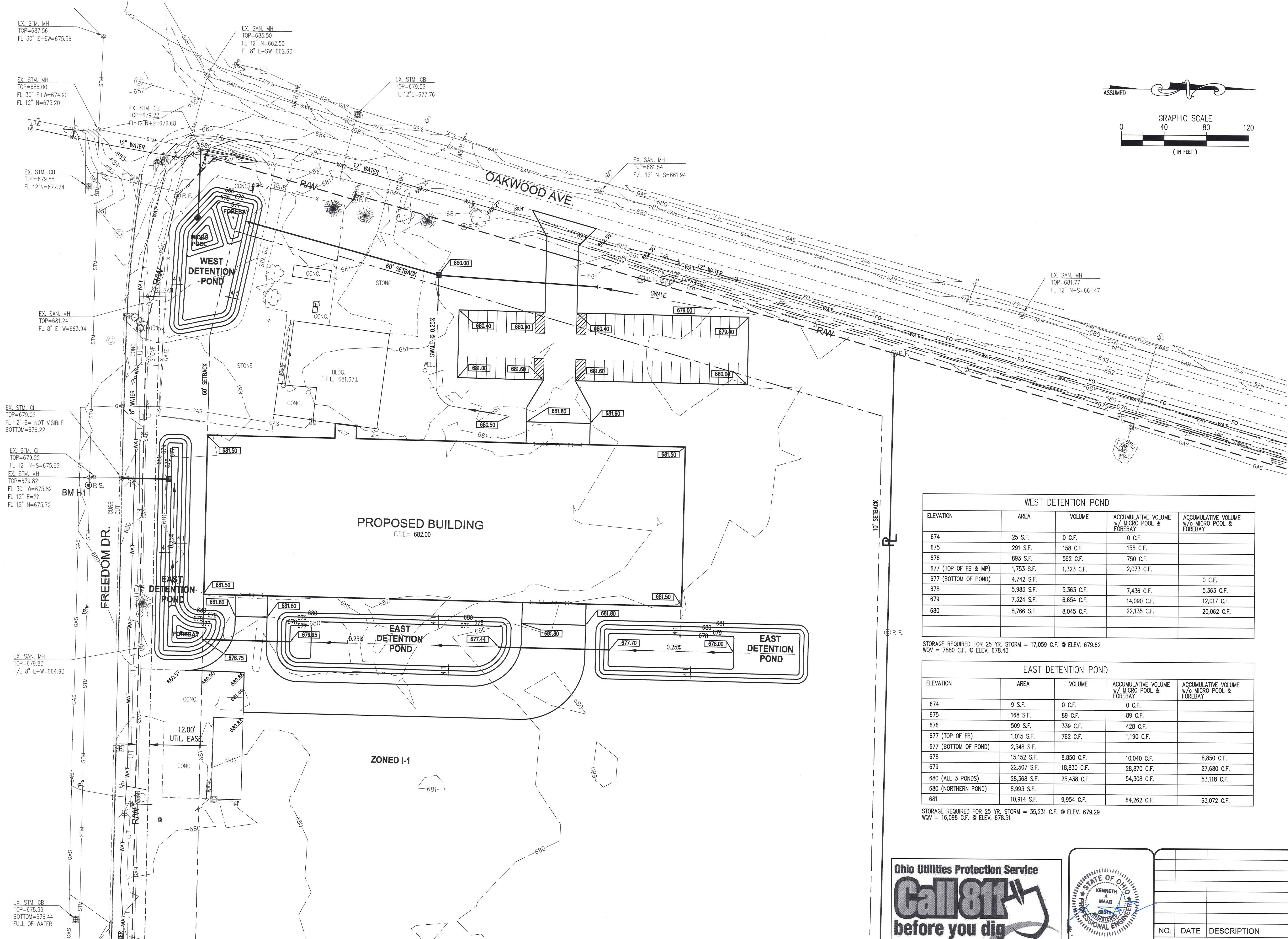
**MCDONALDS' DESIGN & BUILD INC.
TEAM SHANK SITE DEVELOPMENT
NAPOLEON, OHIO**

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WEST DETENTION POND				
ELEVATION	AREA	VOLUME	ACCUMULATIVE VOLUME W/ MICRO POOL & FOREBAY	ACCUMULATIVE VOLUME W/ MICRO POOL & FOREBAY
674	25 S.F.	0 C.F.	0 C.F.	
675	291 S.F.	158 C.F.	158 C.F.	
676	893 S.F.	592 C.F.	750 C.F.	
677 (TOP OF FB & MP)	1,753 S.F.	1,323 C.F.	2,073 C.F.	
677 (BOTTOM OF POND)	4,742 S.F.			0 C.F.
678	5,983 S.F.	5,363 C.F.	7,436 C.F.	5,363 C.F.
679	7,324 S.F.	6,654 C.F.	14,090 C.F.	12,017 C.F.
680	8,766 S.F.	8,045 C.F.	22,135 C.F.	20,062 C.F.

STORAGE REQUIRED FOR 25 YR. STORM = 17,059 C.F. @ ELEV. 679.62
WQV = 7880 C.F. @ ELEV. 678.43

EAST DETENTION POND				
ELEVATION	AREA	VOLUME	ACCUMULATIVE VOLUME W/ MICRO POOL & FOREBAY	ACCUMULATIVE VOLUME W/ MICRO POOL & FOREBAY
674	9 S.F.	0 C.F.	0 C.F.	
675	168 S.F.	89 C.F.	89 C.F.	
676	509 S.F.	339 C.F.	428 C.F.	
677 (TOP OF FB)	1,015 S.F.	762 C.F.	1,190 C.F.	
677 (BOTTOM OF POND)	2,548 S.F.			
678	15,152 S.F.	8,850 C.F.	10,040 C.F.	8,850 C.F.
679	22,507 S.F.	18,830 C.F.	28,870 C.F.	27,680 C.F.
680 (ALL 3 PONDS)	28,368 S.F.	25,438 C.F.	54,308 C.F.	53,118 C.F.
680 (NORTHERN POND)	8,993 S.F.			
681	10,914 S.F.	9,954 C.F.	64,262 C.F.	63,072 C.F.

STORAGE REQUIRED FOR 25 YR. STORM = 35,231 C.F. @ ELEV. 679.29
WQV = 16,098 C.F. @ ELEV. 678.51

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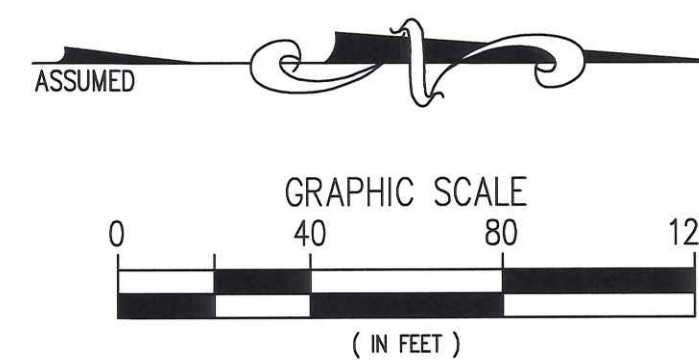
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CHECKED BY: KAM
DATE: 4/12/19

C105
OF

JOB NUMBER
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(419) 782-3067

MCDONALDS' DESIGN & BUILD INC.
TEAM SHANK SITE DEVELOPMENT
NAPOLEON, OHIO



SOIL TYPE LEGEND

Lf LENAWEЕ SILTY CLAY LOAM
0 TO 1 PERCENT SLOPES

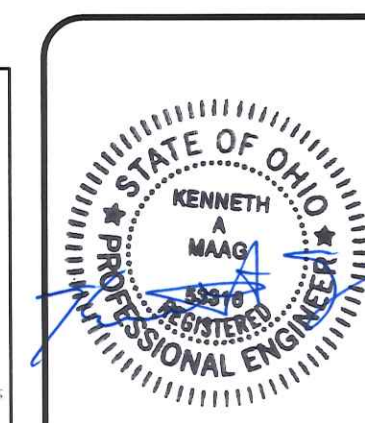
NOTE:
ENTIRE SITE HAS THE
SAME SOIL TYPE.

PROPOSED E&SC LEGEND

- (P) PAVEMENT
 (PS) PERMANENT STABILIZATION
 (IP) INLET PROTECTION
 (SCE) TEMPORARY STABILIZED
 CONSTRUCTION ENTRANCE
 (CW) CONCRETE WASHOUT AREA
 _____ SF _____ SILT FENCE

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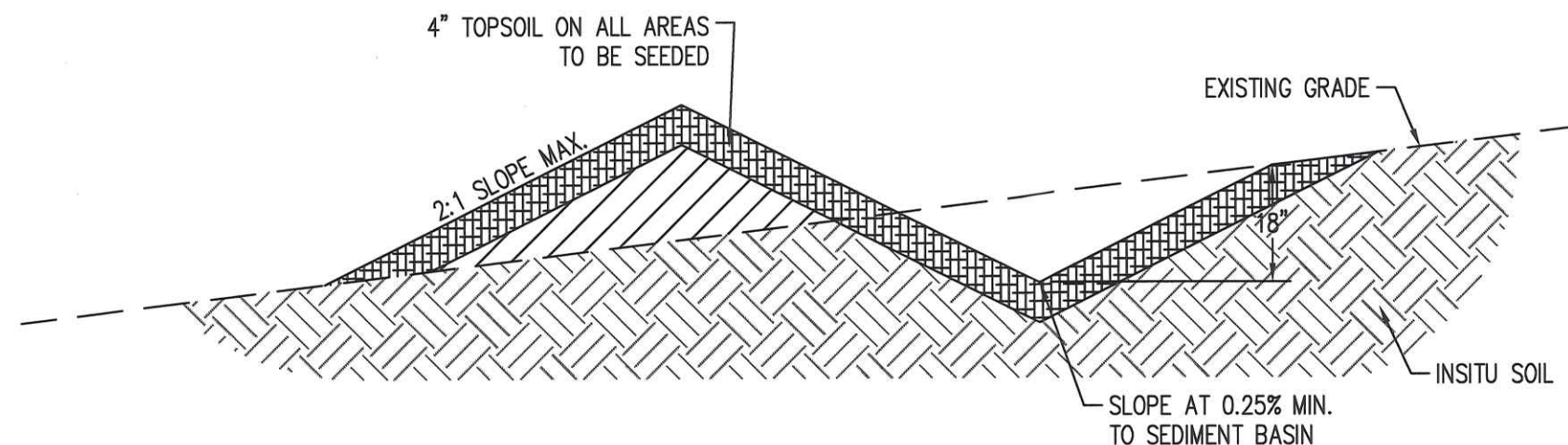
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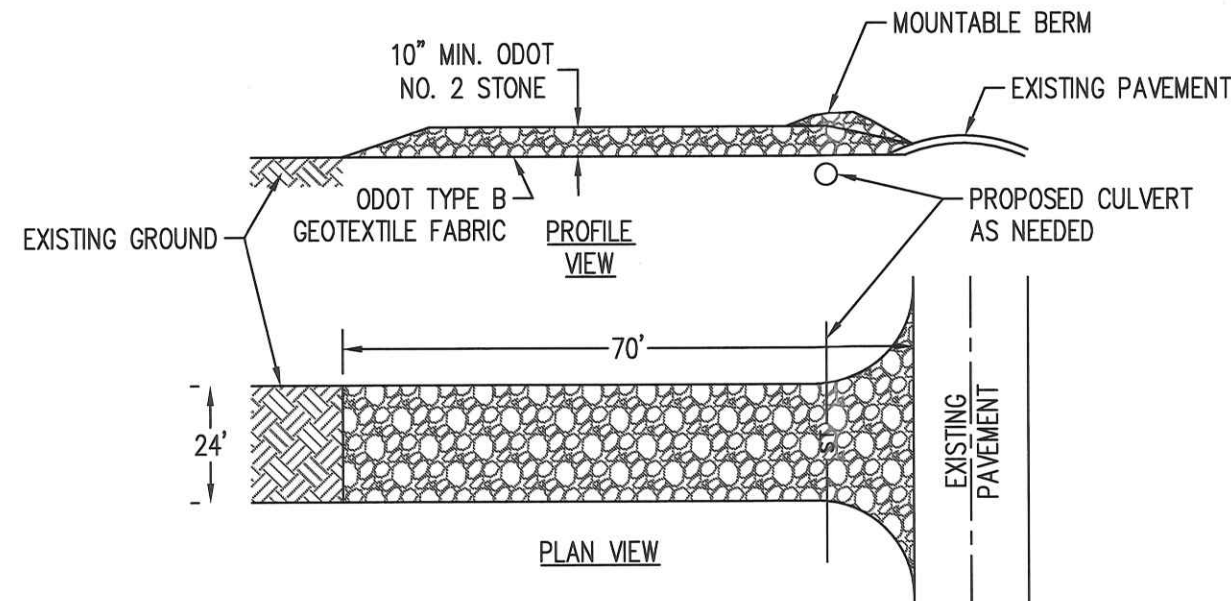


TEMPORARY DIVERSION BERM DETAIL

NOT TO SCALE

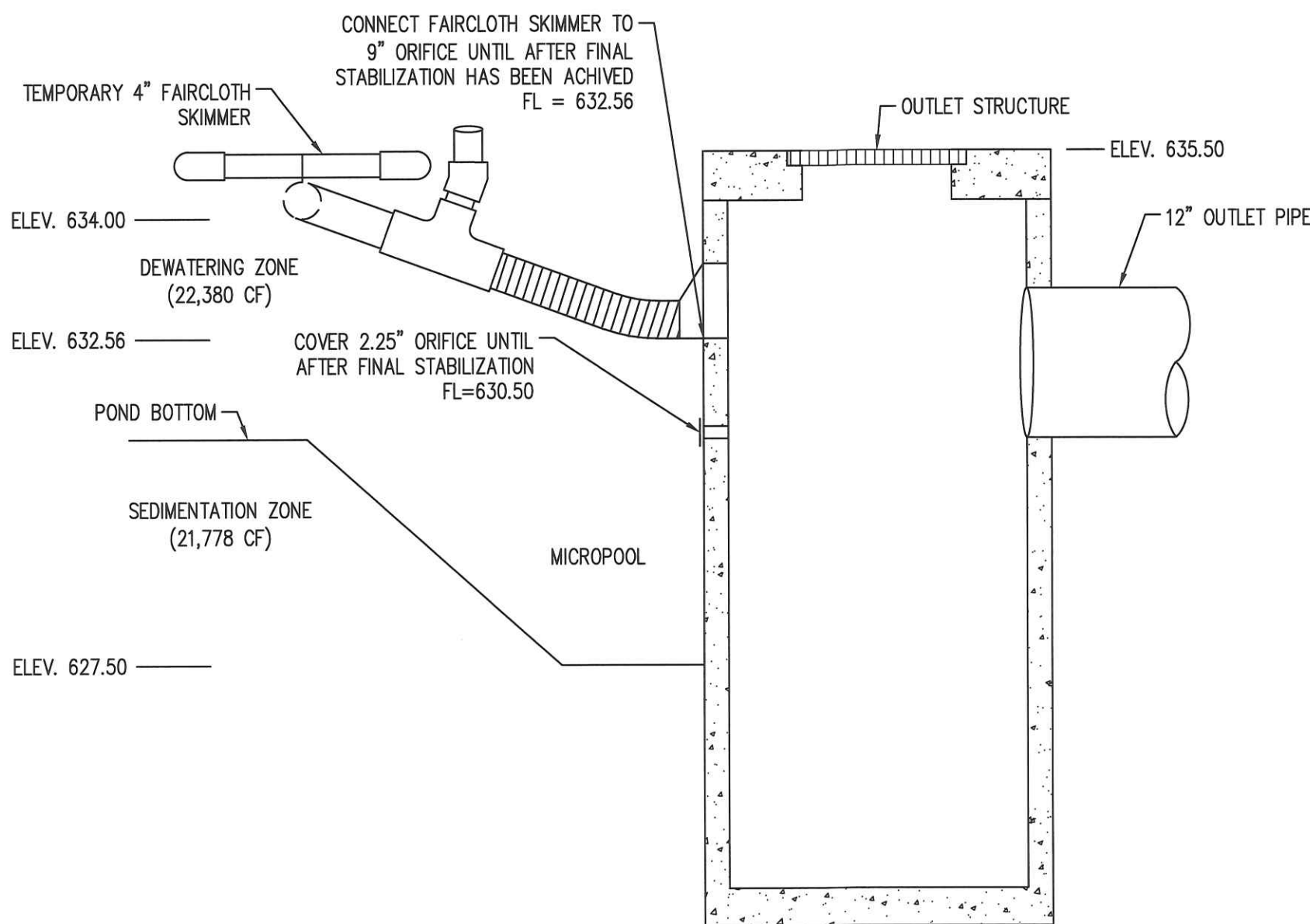
NOTES:

1. NOT ANTICIPATED TO BE USED FOR THIS PROJECT. USE AS NECESSARY TO DIRECT RUNOFF TO THE SEDIMENT BASIN BEFORE THE STORM SEWER IS IN PLACE.
2. DIVERSION DITCH SHALL BE INSTALLED AFTER SEDIMENT BASIN INSTALLATION AND PRIOR TO EARTH DISTURBANCE ACTIVITIES.
3. ROUTINELY INSPECT DIVERSIONS AFTER EACH SIGNIFICANT RAIN EVENT, MAINTAINING DIVERSIONS IN A FUNCTIONAL CONDITION AT ALL TIMES.
4. REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE DIVERSION WHEN THEY REACH HALF OF THE EXPOSED HEIGHT OF CONTROL.
5. WHERE THE DIVERSION DETERIORATES OR FAILS, IT SHALL BE REPAIRED OR REPLACED WITH A MORE EFFECTIVE ALTERNATIVE.



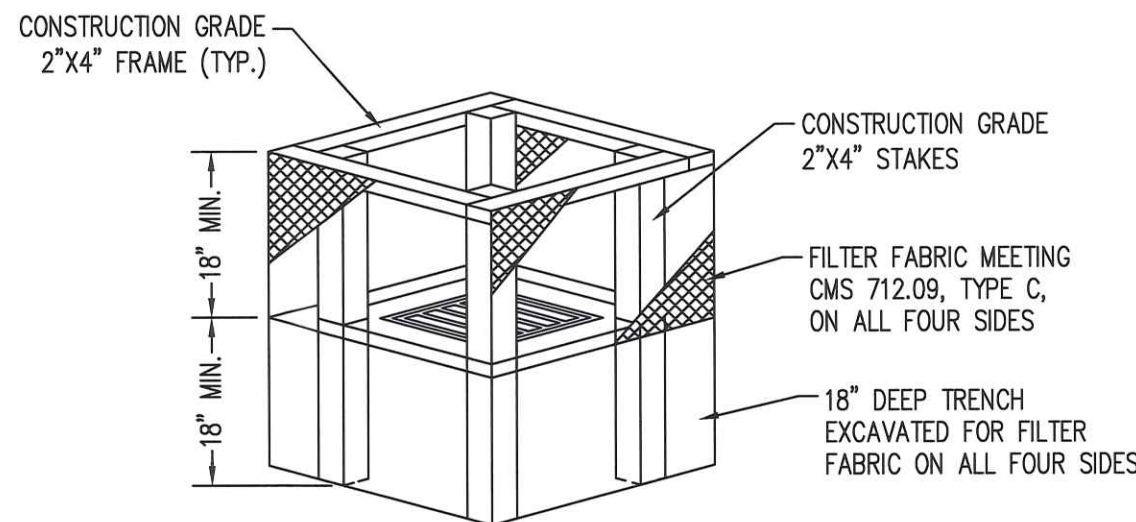
STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



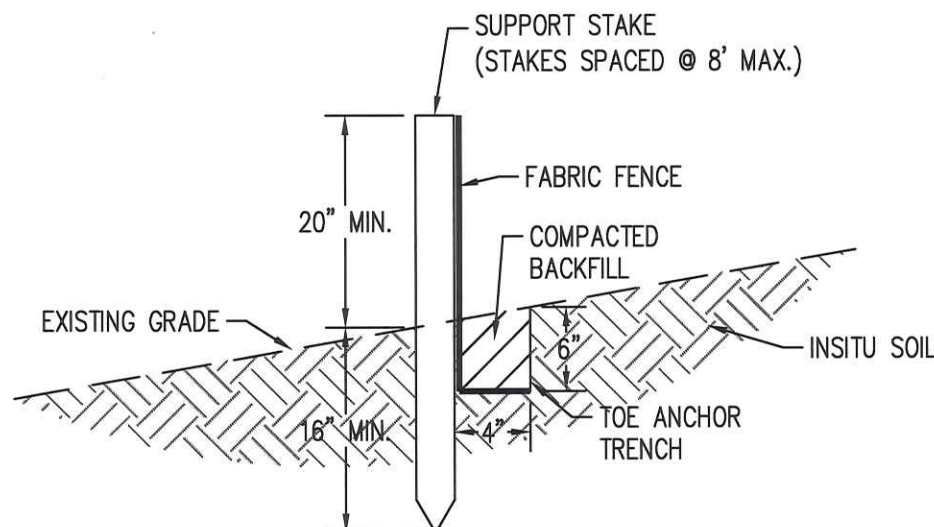
SEDIMENT BASIN OUTLET STRUCTURE

NOT TO SCALE



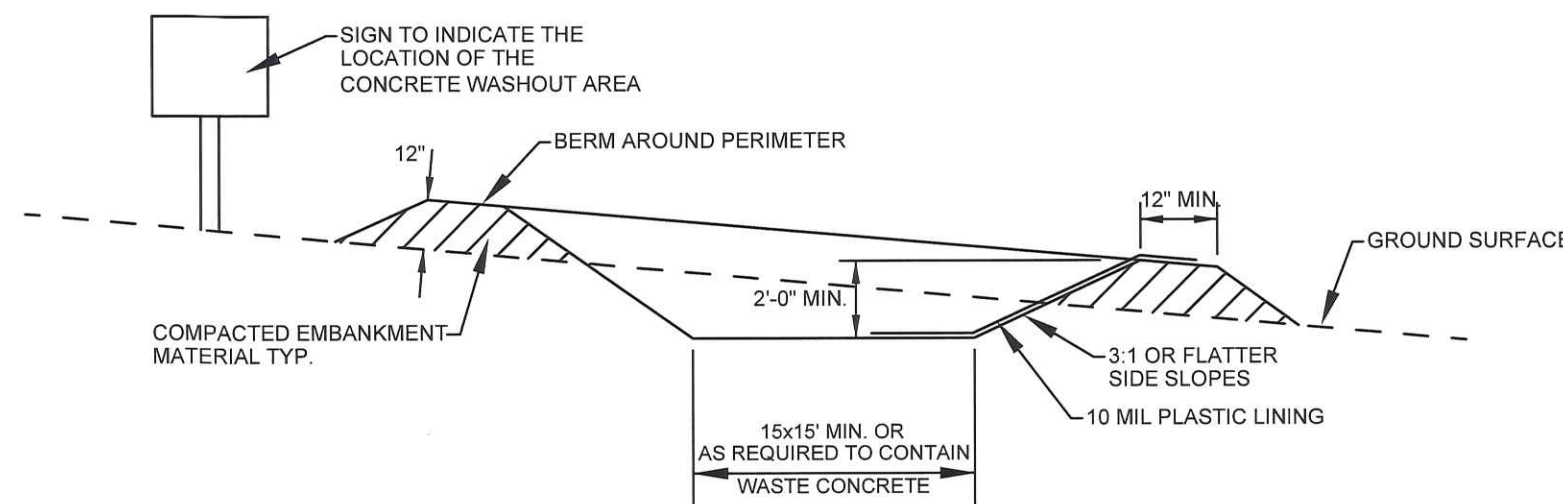
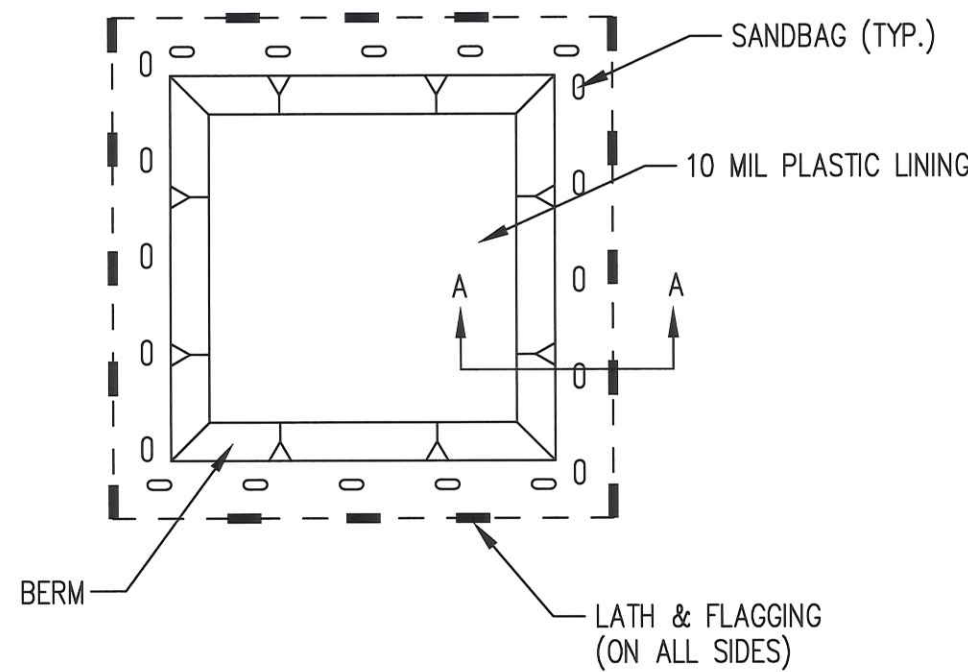
CATCH BASIN INLET PROTECTION

NOT TO SCALE



TYPICAL SILT FENCE DETAIL

NOT TO SCALE



CONCRETE WASHOUT DETAIL

SCALE: NONE (PRACTICE 3.78)

TEMPORARY CONCRETE WASHOUT FACILITY NOTES:

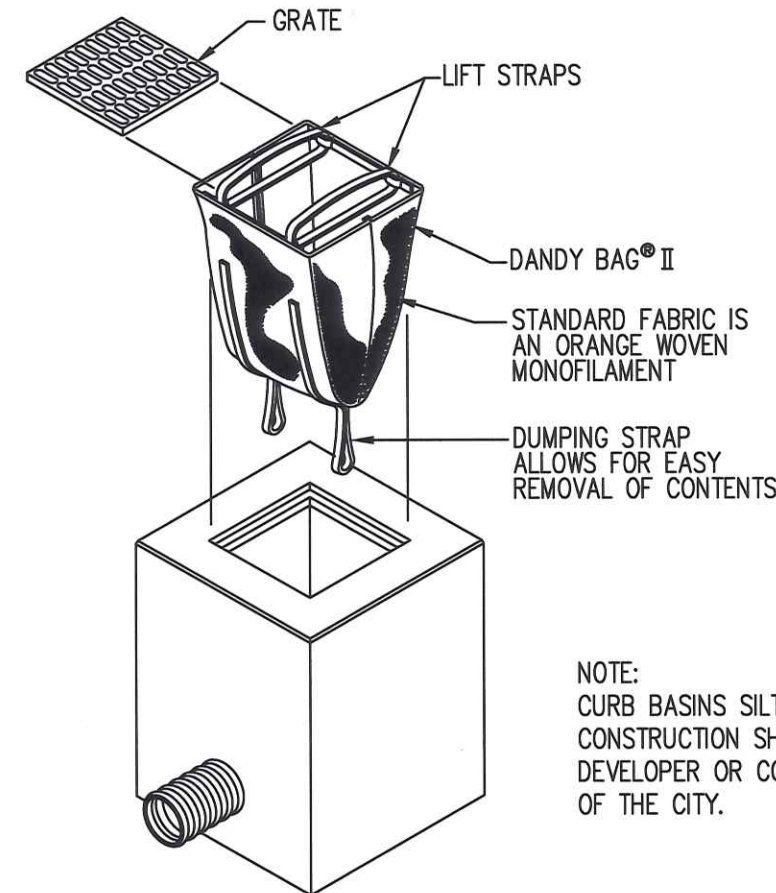
1. TEMPORARY CONCRETE WASHOUT FACILITIES (TYPE BELOW GRADE) SHOULD BE CONSTRUCTED AS SHOWN ON THE DETAIL, WITH A RECOMMENDED MINIMUM LENGTH AND MINIMUM WIDTH OF 15 FEET. THE QUANTITY AND VOLUME SHOULD BE SUFFICIENT TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
2. PLASTIC LINING MATERIALS SHALL BE A MINIMUM OF 10 MIL POLYETHYLENE SHEETING AND SHALL BE FREE OF HOLES, TEARS OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

DANDY BAG® II

Installation and Maintenance Guidelines

Installation: Remove the grate from catch basin. If using optional oil absorbents; place absorbent pillow in unit. Stand the grate on end. Move the top lifting straps out of the way and place the grate into the Dandy Bag® II so that the grate is below the top straps and above the lower straps. Holding the lifting devices, insert the grate into the inlet.

Maintenance: Remove all accumulated sediment and debris from vicinity of unit after each storm event. After each storm event and at regular intervals, look into the Dandy Bag® II. If the containment area is more than 1/3 full of sediment, the unit must be emptied. To empty unit, lift the unit out of the inlet using the lifting straps and remove the grate. If using optional oil absorbents; replace absorbent when near saturation.



NOTE: CURB BASINS SILTED UP OR CLOGGED DURING CONSTRUCTION SHALL BE MAINTAINED BY THE DEVELOPER OR CONTRACTOR AT THE DIRECTION OF THE CITY.

SITE MANAGEMENT

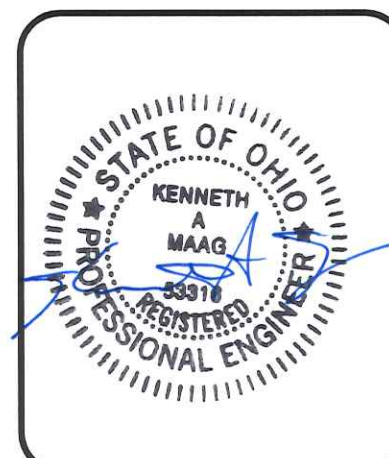
CONCRETE WASHOUT

- COMPLETE CONSTRUCTION/INSTALLATION OF THE SYSTEM AND HAVE WASHOUT LOCATIONS OPERATIONAL PRIOR TO CONCRETE DELIVERY.
- DO NOT WASH OUT CONCRETE TRUCKS OR EQUIPMENT INTO STORM DRAINS, WETLANDS, STREAMS, RIVERS, CREEKS, DITCHES, OR STREETS.
- NEVER WASH OUT INTO A STORM SEWER DRAINAGE SYSTEM. THESE SYSTEMS ARE TYPICALLY CONNECTED TO A NATURAL CONVEYANCE SYSTEM.
- WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS.
- IT IS RECOMMENDED THAT WASHOUT SYSTEMS BE RESTRICTED TO WASHING CONCRETE FROM MIXER AND PUMP TRUCKS AND NOT USED TO DISPOSE OF EXCESS CONCRETE OR RESIDUAL LOADS DUE TO POTENTIAL TO EXCEED THE DESIGN CAPACITY OF THE WASHOUT SYSTEM. SMALL AMOUNTS OF EXCESS OR RESIDUAL CONCRETE (NOT WASHOUT WATER) MAY BE DISPOSED OF IN AREAS THAT WILL NOT RESULT IN FLOW TO AN AREA THAT IS TO BE PROTECTED.
- INSTALL SIGNAGE IDENTIFYING THE LOCATION OF CONCRETE WASHOUT SYSTEMS.
- RUNOFF FROM A RAINSTORM OR SNOW MELT SHOULD NOT CARRY WASTES AWAY FROM THE WASHOUT LOCATION.

MAINTENANCE

- INSPECT DAILY AND AFTER EACH STORM EVENT.
- INSPECT THE INTEGRITY OF THE OVERALL STRUCTURE INCLUDING, WHERE APPLICABLE, THE CONTAINMENT SYSTEM.
- INSPECT THE SYSTEM FOR LEAKS, SPILLS, AND TRACKING OF SOIL BY EQUIPMENT.
- INSPECT THE POLYETHYLENE LINING FOR FAILURE, INCLUDING TEARS AND PUNCTURES.
- ONCE CONCRETE WASTES HARDEN, REMOVE AND DISPOSE OF THE MATERIAL.
- EXCESS CONCRETE SHOULD BE REMOVED WHEN THE WASHOUT SYSTEM REACHES 50 PERCENT OF CAPACITY. USE OF THE SYSTEM SHOULD BE DISCONTINUED UNTIL APPROPRIATE MEASURES CAN BE INITIATED TO CLEAN THE STRUCTURE. PREFABRICATED SYSTEMS SHOULD ALSO UTILIZE THIS CRITERION, UNLESS THE MANUFACTURER HAS ALTERNATE SPECIFICATIONS.
- UPON REMOVAL OF THE SOLIDS, INSPECT THE STRUCTURE. REPAIR THE STRUCTURE AS NEEDED OR CONSTRUCT A NEW SYSTEM.
- DISPOSE OF ALL CONCRETE IN A LEGAL MANNER.
- THE PLASTIC LINER SHOULD BE REPLACED AFTER EVERY CLEANING.
- THE CONCRETE WASHOUT SYSTEM SHOULD BE REPAIRED OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE.
- CONCRETE WASHOUT SYSTEMS ARE DESIGNED TO PROMOTE EVAPORATION. HOWEVER, IF THE LIQUIDS DO NOT EVAPORATE AND THE SYSTEM IS NEAR CAPACITY, IT MAY BE NECESSARY TO VACUUM OR REMOVE THE LIQUIDS AND DISPOSE OF THEM IN AN ACCEPTABLE METHOD. DISPOSAL MAY BE ALLOWED AT THE LOCAL SANITARY SEWER AUTHORITY PROVIDED THEIR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS ALLOW FOR ACCEPTANCE OF THIS MATERIAL. ANOTHER OPTION WOULD BE TO UTILIZE A SECONDARY CONTAINMENT SYSTEM OR BASIN FOR FURTHER DEWATERING.

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NO.	DATE	DESCRIPTION

DRAWN BY MEK	CHECKED BY KAM
DATE 4/12/19	
C107 OF	
JOB NUMBER 703400-00021	

McDONALDS' DESIGN & BUILD INC.
TEAM SHANK SITE DEVELOPMENT
NAPOLEON, OHIO

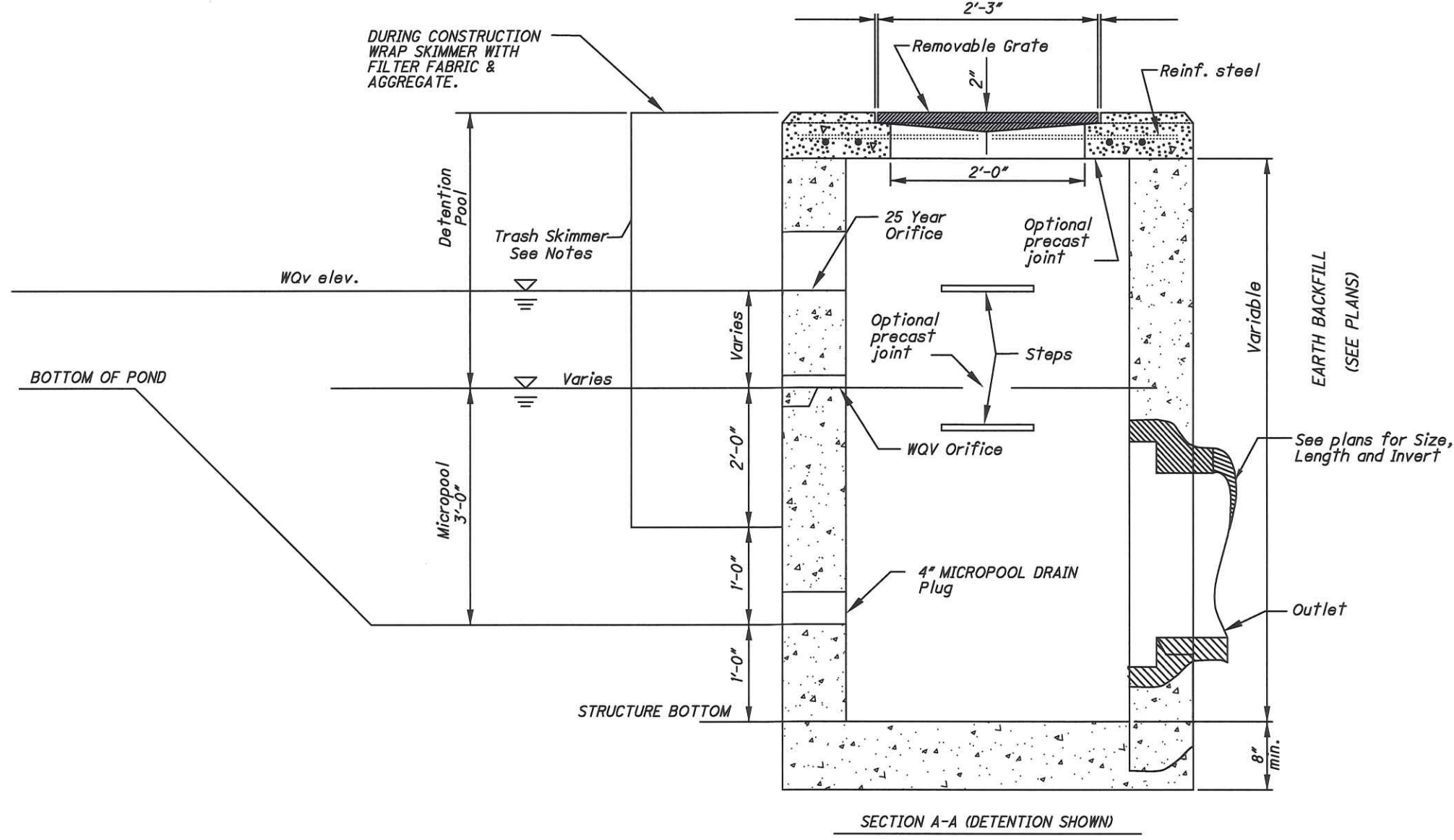
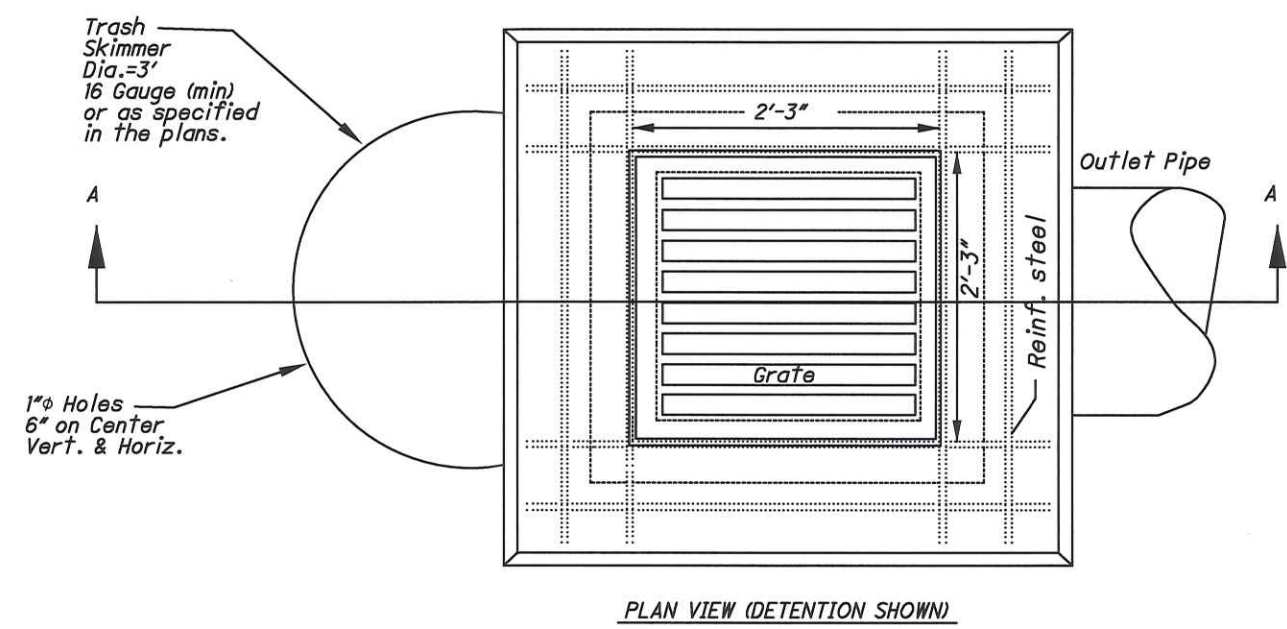
EROSION AND
SEDIMENT CONTROL
DETAILS

POGGEMEYER DESIGN GROUP, INC.
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DEFIANCE, OHIO 43512
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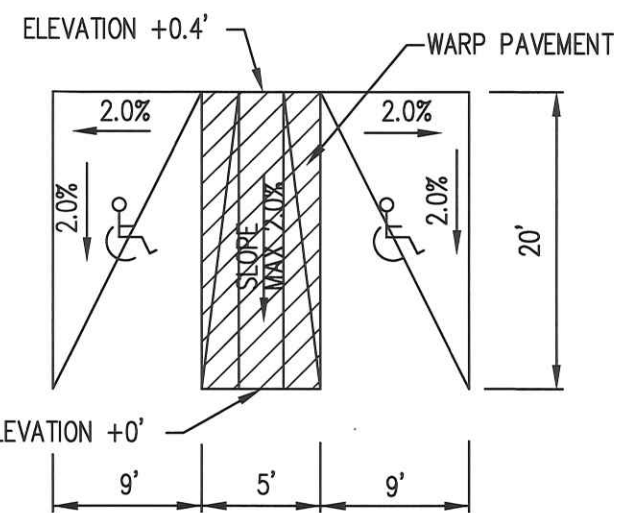
OUTLET STRUCTURE DETAIL
NOT TO SCALE

	EAST OUTLET STRUCTURE #1	WEST OUTLET STRUCTURE #2
SIZE OF STRUCTURE	2' x 2'	2' x 2'
TOP OF STRUCTURE	681.00	681.00
25 YEAR ELEVATION	679.62	679.29
WQV ELEVATION	678.51	678.43
WQV ORIFICE ELEVATION	677.60	677.00
25 YEAR DETENTION ORIFICE ELEVATION	678.51	678.43
WQV ORIFICE SIZE	2"	1.5"
NUMBER OF ORIFICES	1	1
25 YEAR DETENTION ORIFICE SIZE	3" x 2'	6" DIA.
OUTLET SIZE	12"	12"
OUTLET INVERT	676.35	676.65
BOTTOM OF STRUCTURE	675.85	676.35

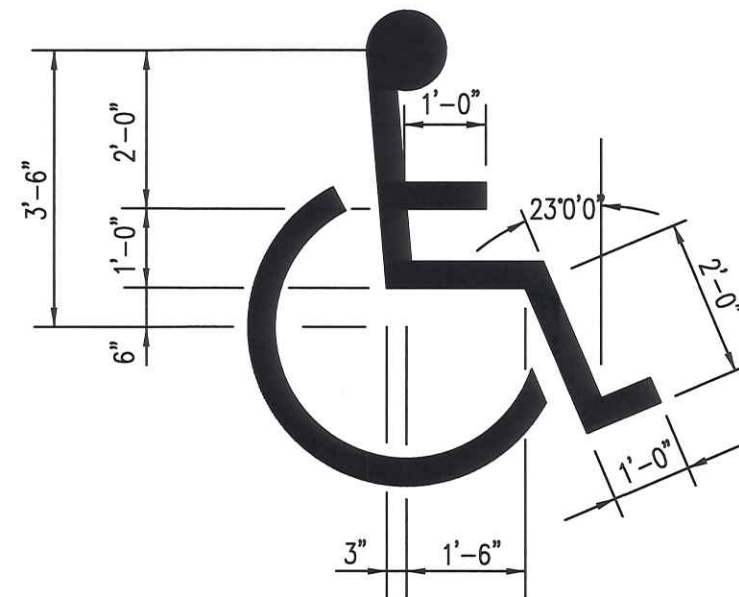
NOTES

LOCATION AND ELEVATION: When given on the plans, the location and the elevation are at the top center of the grate. The orifice holes should be placed at the elevations as shown on the plans.

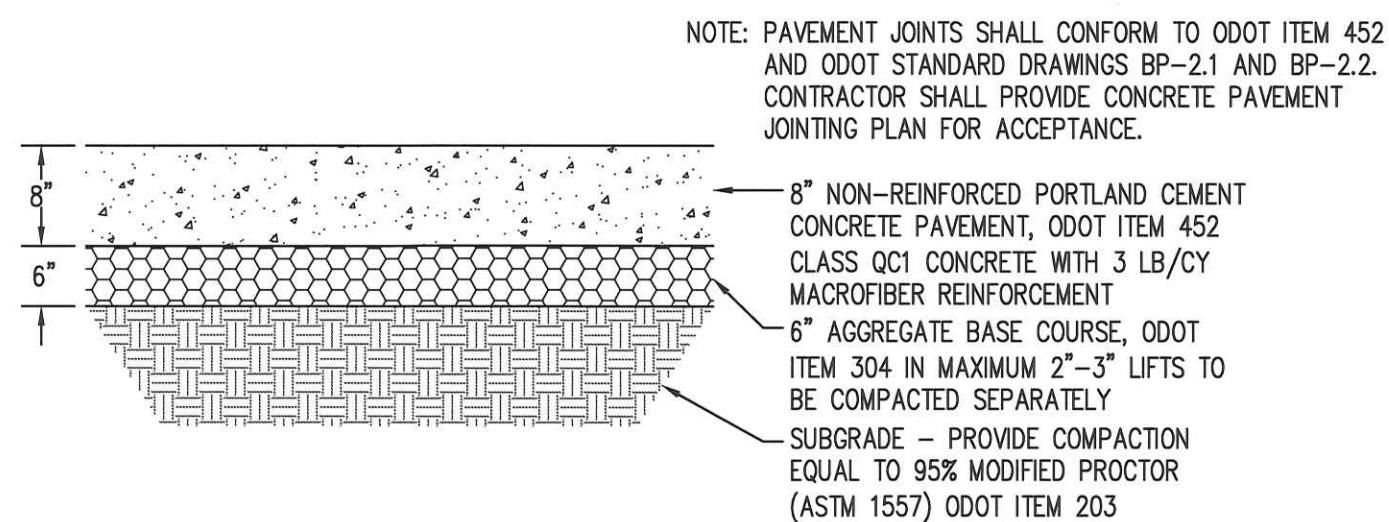
TRASH SKIMMER: Use trash skimmer screens to protect the WQV perforations. It must extend from the top of the structure to 2' below the permanent pool level and be open at the top and bottom. The radius of the trash skimmer shall be 3" or as shown on the plans. Trash skimmer shall be stainless steel or galvanized steel per CMS 711.02. Maximum perforation size shall be 2 inches. Securely fasten trash skimmer to the basin using hardware galvanized per CMS 711.02. After 70% covering of grassed areas, remove fabric and aggregate from trash skimmer.



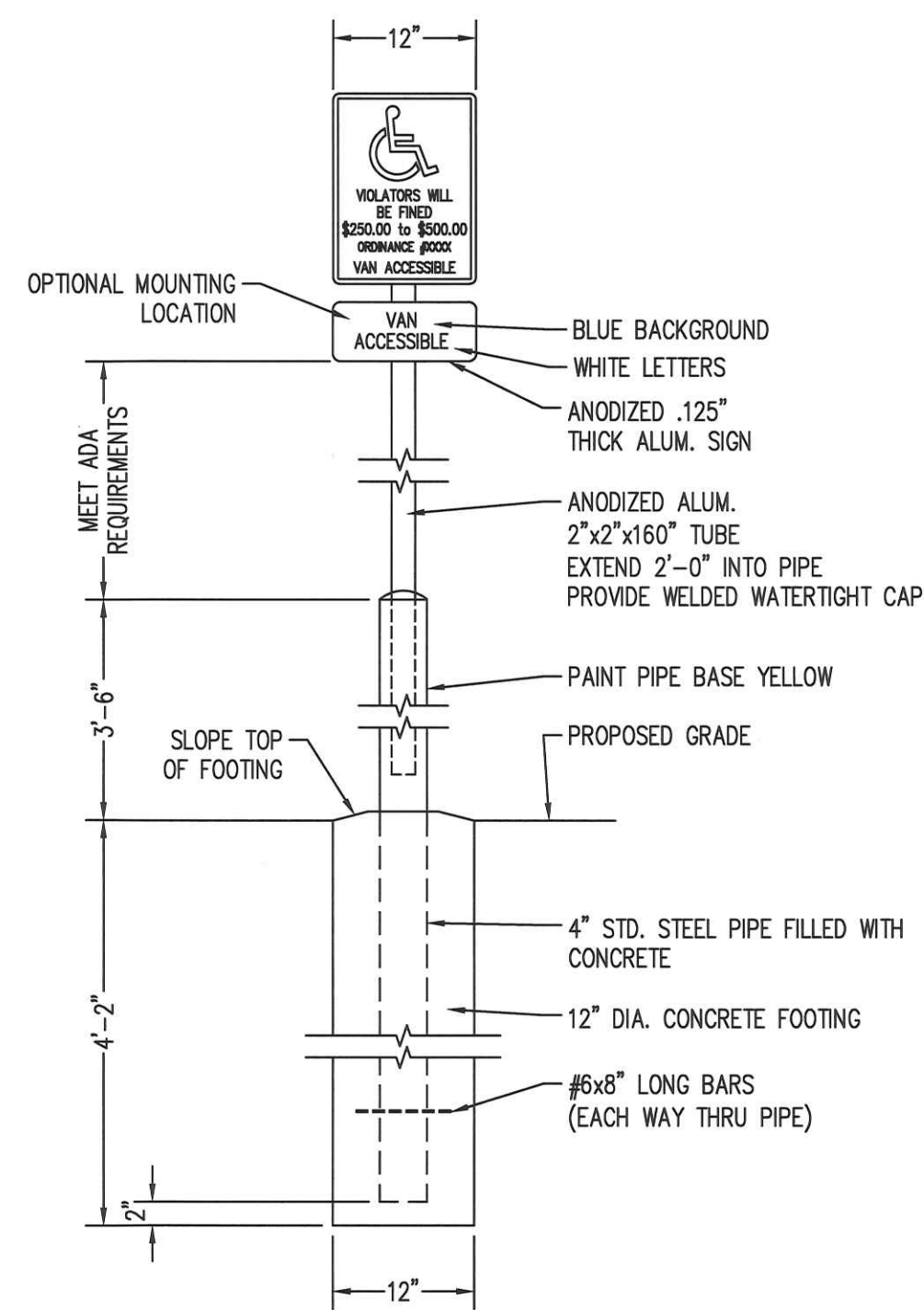
TYPICAL HANDICAP PARKING
SCALE: NONE



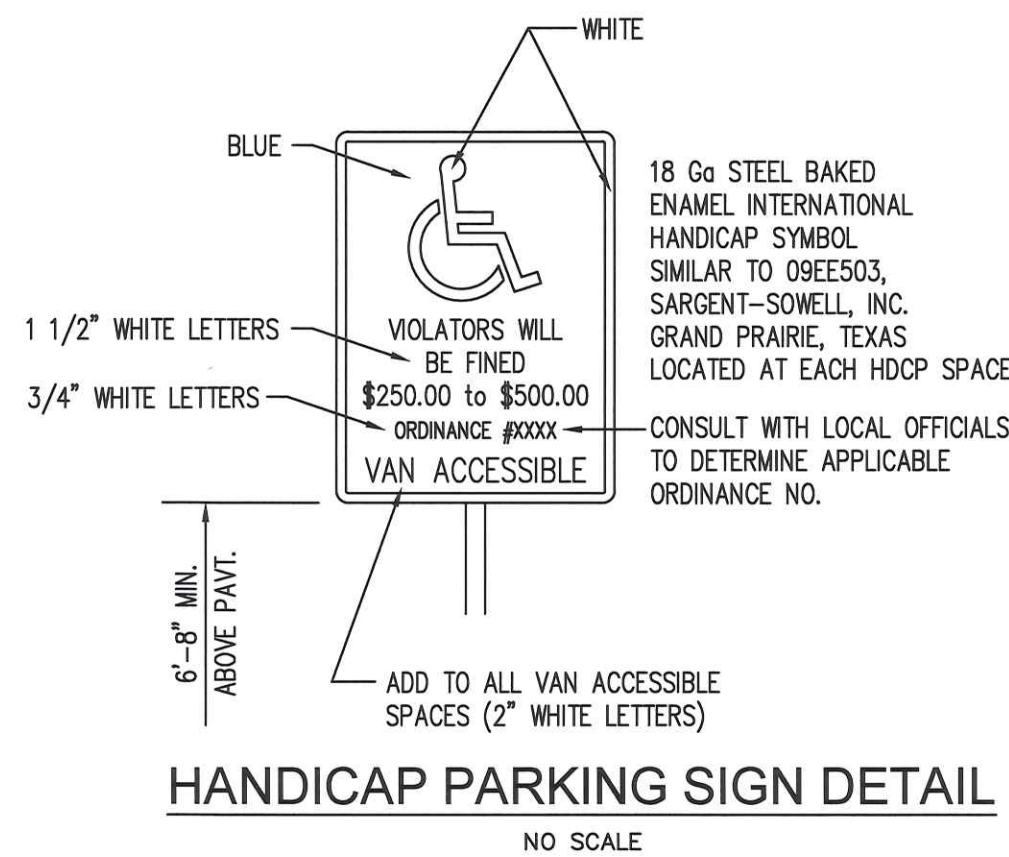
PAINTED HANDICAP SYMBOL
SCALE: NONE



TYPICAL CONCRETE PAVEMENT SECTION
NOT TO SCALE



HANDICAP PARKING SIGN
NOT TO SCALE



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POGGEMEYER DESIGN GROUP, INC.
ARCHITECTS
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DEFIANCE, OHIO 43512
(419) 782-3067

MCDONALDS' DESIGN & BUILD INC.
TEAM SHANK SITE DEVELOPMENT
NAPOLEON, OHIO

MISCELLANEOUS
DETAILS

DRAWN BY: MEK
CHECKED BY: KAM
DATE: 4/12/19

C108
OF

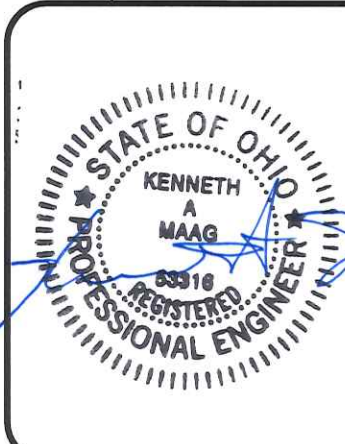
JOB NUMBER
703400-00021

ANY INFORMATION OR DATA ON THIS DRAWING IS NOT INTENDED TO BE SUITABLE FOR REUSE BY ANY PERSON, FIRM OR CORPORATION OR ANY OTHERS ON EXTENSIONS OF THIS PROJECT OR FOR ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION AND ADAPTATION BY THE ENGINEER, ARCHITECT OR SURVEYOR FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO THE ENGINEER, ARCHITECT OR SURVEYOR.

FILE No. I:\703400\00021\70340000021--NOTES AND DETAILS.dwg 04/12/19 07:14-kernerm

SITE WORK SPECIFICATIONS			
1. SUMMARY	A. WORK INCLUDES CLEARING, GRUBBING, GRADING, EROSION CONTROL, UNDERGROUND UTILITIES, PAVING, SITE RESTORATION, AND INCIDENTAL ITEMS AS SHOWN AND AS SPECIFIED. B. CONSTRUCTION LIMITS SHALL BE WITHIN OWNERS PROPERTY BOUNDARIES AND CONSTRUCTION EASEMENTS AS SHOWN ON DRAWINGS.	10. TRAFFIC CONTROL	A. FURNISH AND MAINTAIN CONSTRUCTION BARRICADES AND TRAFFIC CONTROL DEVICES WHEN WORKING IN AREAS OPEN TO TRAFFIC. BARRICADES AND TRAFFIC CONTROL DEVICES SHALL COMPLY WITH STATE DOT STANDARDS. B. THE CONTRACTOR SHALL KEEP EXISTING STREETS, ROADS, DRIVES, AND BUILDING ENTRIES CLEAR OF DIRT, DEBRIS AND EQUIPMENT.
2. REGULATIONS	THE CONTRACTOR IS RESPONSIBLE FOR INITIATING, MAINTAINING, SUPERVISING, AND COMPLYING WITH ALL FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), STATE, AND LOCAL SAFETY REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING SAFEGUARDS, SAFETY DEVICES, AND PROTECTIVE EQUIPMENT NECESSARY FOR THE PROTECTION OF PERSONS AND PROPERTY AFFECTED BY THE PROJECT AT ALL TIMES. SHEETING, BRACING, CRIBBING, ETC. MUST BE INSTALLED AS REQUIRED TO PROVIDE MAXIMUM SAFETY TO THE CONTRACTOR'S WORKERS IN FULL COMPLIANCE WITH OSHA REGULATIONS. IN ADDITION, THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE PROJECT TO PREVENT UNAUTHORIZED PERSONNEL FROM HAZARDOUS OR DANGEROUS CONDITIONS.	11. TESTING	A. TESTING LABORATORY SERVICES REFERENCES 1. ANSI/ASTM D3740 - PRACTICE FOR EVALUATION OF AGENCIES ENGAGED IN TESTING AND/OR INSPECTION OF SOIL AND ROCK AS USED IN ENGINEERING DESIGN AND CONSTRUCTION. 2. ANSI/ASTM E329 - RECOMMENDED PRACTICE FOR INSPECTION AND TESTING AGENCIES FOR CONCRETE, STEEL AND BITUMINOUS MATERIALS AS USED IN CONSTRUCTION. B. SELECTION AND PAYMENT 1. CONTRACTOR SHALL EMPLOY AND PAY FOR SERVICES OF AN INDEPENDENT TESTING LABORATORY TO PERFORM SPECIFIED INSPECTION AND TESTING. 2. EMPLOYMENT OF TESTING LABORATORY SHALL BE IN NO WAY RELIEVE CONTRACTOR OF OBLIGATION TO PERFORM WORK IN ACCORDANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS. C. QUALITY ASSURANCE 1. COMPLY WITH REQUIREMENTS OF ANSI/ASTM E329 AND ANSI/ASTM D3740.
3. SPECIFICATIONS: GENERAL NOTES	A. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE STATE LOCAL/MUNICIPAL/TOWNSHIP AND/OR COUNTY DEPARTMENT OF TRANSPORTATION LATEST EDITION AND CONSTRUCTION STANDARDS, UNLESS OTHERWISE NOTED, AND TENANT REQUIREMENTS AS DEPICTED IN THESE PLANS. IN ADDITION, ALL WORK WILL BE IN COMPLIANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AND REGULATIONS, UNLESS NOTED OTHERWISE. B. THE CONTRACTOR SHALL FURNISH SUPERVISION, LABOR, MATERIALS, AND EQUIPMENT, AND SHALL PERFORM ALL WORK AND SERVICES NECESSARY TO COMPLETE IN A SATISFACTORY MANNER THE SITE PREPARATION, EXCAVATION, FILLING, COMPACTION, AND GRADING, AS SHOWN ON THE APPROVED AND ISSUED FOR CONSTRUCTION PLANS; AS DESCRIBED THEREIN.	12. EROSION CONTROL	EROSION CONTROL MEASURES SHALL COMPLY WITH THE DRAWINGS; THE EROSION CONTROL AND STORM WATER MANAGEMENT PLAN PROVIDED.
4. CONSTRUCTION SURVEYING	A. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE LOCATION, ALIGNMENT, ELEVATION, AND GRADE OF ALL WORK SHOWN ON THE DRAWINGS AND SPECIFICATIONS. B. THE CONTRACTOR SHALL USE COMPETENT PERSONNEL AND SUITABLE EQUIPMENT. IF NECESSARY, THE CONTRACTOR SHALL EMPLOY A REGISTERED ENGINEER OR SURVEYOR TO SUPERVISE THE WORK. C. VERIFICATION AND PROTECTION 1. VERIFY LOCATIONS OF SURVEY CONTROL POINTS PRIOR TO STARTING WORK. PROMPTLY NOTIFY OWNER OF ANY DISCREPANCIES DISCOVERED. 2. PROTECT OR RELOCATE SURVEY CONTROL POINTS PRIOR TO STARTING SITE WORK; PRESERVE PERMANENT REFERENCE POINTS DURING CONSTRUCTION. D. ELEVATION DATUM: ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM. (ONLY IF NEEDED).	13. CLEARING AND GRUBBING	A. THIS WORK SHALL CONSIST OF ALL CLEARING AND GRUBBING, REMOVAL OF EXISTING STRUCTURES UNLESS OTHERWISE STATED. PROPER AND APPROVED DISPOSAL OF MATERIALS NOT REUSED FOR THE PROJECT. PREPARATION OF THE LAND TO BE FILLED, FILLING OF THE LAND, SPREADING AND COMPACTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES, SLOPES AND SPECIFICATIONS. B. SUBSURFACE CONDITIONS: PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL EXAMINE, INVESTIGATE, AND INSPECT THE CONSTRUCTION SITE AS TO THE NATURE AND LOCATION OF THE WORK AND THE GENERAL AND LOCAL CONDITIONS AT THE CONSTRUCTION SITE, INCLUDING, WITHOUT LIMITATION, THE CHARACTER OF SURFACE OR SUBSURFACE CONDITIONS AND OBSTACLES TO BE ENCOUNTERED ON AND AROUND THE CONSTRUCTION SITE, AND SHALL MAKE SUCH ADDITIONAL INVESTIGATION NECESSARY FOR THE PLANNING AND PROPER EXECUTION OF THE WORK. C. BORINGS AND/OR SOILS INVESTIGATIONS HAVE BEEN MADE FOR THE PURPOSE OF THE DESIGN OF THIS PROJECT. RESULTS OF THESE BORINGS AND STUDIES WILL BE MADE AVAILABLE BY THE OWNER TO THE CONTRACTOR UPON REQUEST, BUT THE OWNER AND GEOTECHNICAL FIRM ARE NOT RESPONSIBLE FOR ANY INTERPRETATIONS OR CONCLUSIONS WITH RESPECT THERETO MADE BY THE CONTRACTOR ON THE BASIS OF SUCH INFORMATION AND THE OWNER FURTHER HAS NO RESPONSIBILITY FOR THE ACCURACY OF THE BORINGS AND THE SOIL INVESTIGATIONS. D. REMOVE TREES, STUMPS, SNAGS, SHRUBS, BRUSH, HEAVY GROWTHS OF GRASS, WEEDS AND OTHER VEGETATION, IMPROVEMENTS, RUBBISH AND DEBRIS, AND OBSTRUCTIONS THAT INTERFERE WITH PROPOSED CONSTRUCTION; REMOVE ITEMS ONLY AS NECESSARY FOR COMPLETION OF WORK. E. CUT BRUSH AND VEGETATION FLUSH WITH GROUND. GRUB OUT STUMPS, AND ROOTS HAVING A DIAMETER OF 2" OR LARGER, AND ROOT CLUSTERS TO A DEPTH OF AT LEAST 24 INCHES BELOW SUBGRADE ELEVATION FOR PAVEMENTS, STRUCTURES, AND EMBANKMENTS AND 6" BELOW GROUND SURFACE IN OTHER AREAS.
5. PROJECT RECORD DRAWINGS	KEEP A CURRENT SET OF DRAWINGS AT JOB SITE THAT ARE MARKED TO SHOW LOCATION OF ITEMS CONCEALED UPON COMPLETION OF WORK AND ALL CHANGES MADE DURING CONSTRUCTION. DIMENSION UNDERGROUND AND CONCEALED WORK AND UTILITIES FROM PERMANENT REFERENCE POINTS; RECORD VERTICAL DISTANCES. SUBMIT PROJECT RECORD DRAWINGS TO OWNER UPON COMPLETION OF WORK IN THE FORM OF EITHER AUTOCAD OR MICROSTATION ELECTRONIC FILES.	14. TOP SOIL STRIPPING	A. STRIP TOPSOIL FROM PROJECT AREA TO WHATEVER DEPTHS ENCOUNTERED; PREVENT INTERMIXING WITH UNDERLYING SUBSOIL OR OTHER OBJECTIONABLE MATERIAL. REMOVE HEAVY GROWTHS OF GRASS FROM AREAS BEFORE STRIPPING TOPSOIL. B. STOCKPILE TOPSOIL IN STORAGE PILES IN AREAS AS DESIGNATED BY OWNER. CONSTRUCT STOCKPILE PILES TO FREELY DRAIN SURFACE WATER. COVER OR SPRINKLE WATER ON STORAGE PILES TO PREVENT WIND-BLOWN DUST.
6. COORDINATION	A. THE CONTRACTOR SHALL COORDINATE THE STAGING AREA LOCATION FOR MATERIALS, EQUIPMENT, AND EMPLOYEE PARKING WITH THE OWNER. B. THE OWNER'S BUILDING OPERATIONS SHALL BE MAINTAINED AT ALL TIMES; CONSTRUCTION SCHEDULE AND TRAFFIC MAINTENANCE SHALL BE APPROVED BY THE OWNER.	15. EARTH WORK AND GRADING CONSTRUCTION	A. ALL EARTH AND GRADING SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE STATE DEPARTMENT OF TRANSPORTATION LATEST EDITION. B. THE GRADING OPERATIONS SHALL BE CLOSELY SUPERVISED AND INSPECTED, PARTICULARLY DURING THE REMOVAL OF UNSUITABLE MATERIAL AND THE CONSTRUCTION OF EMBANKMENTS OR BUILDING PADS, BY THE GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. ALL TESTING, INSPECTION AND SUPERVISION OF THE SOILS RELATED OPERATIONS SHALL BE ENTIRELY THE RESPONSIBILITY OF THE GEOTECHNICAL ENGINEER. C. THE GRADING AND CONSTRUCTION OF THE SITE IMPROVEMENTS SHALL NOT CAUSE PONDING OF STORMWATER. ALL AREAS ADJACENT TO THESE IMPROVEMENTS SHALL BE GRADED TO ALLOW POSITIVE DRAINAGE. D. THE PROPOSED GRADING ELEVATIONS SHOWN ON THE PLANS ARE FINISHED GRADE, EXCEPT FOR AREAS AS DESIGNATED FOR FUTURE DEVELOPMENT. E. THE DETENTION BASIN AND BERMS MAY BE OVER EXCAVATED TO MEET FILL REQUIREMENTS. THE OVER EXCAVATED AREAS WILL BE REFILLED WITH SUITABLE MATERIAL. F. THE SELECTED FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS SO THAT THE COMPACTED THICKNESS IS APPROXIMATELY SIX INCHES (6"). EACH LAYER SHALL BE THOROUGHLY MIXED DURING SPREADING TO INSURE UNIFORMITY. G. PLACE FILL IN PAVEMENT AREAS, DETENTION POND DIKES, UNDER BUILDING FOUNDATIONS AND SLABS, UNDER OUT LOT BUILDING PADS, AND WITHIN 10 FEET OF BUILDING LINES IN LOOSE LIFTS NOT MORE THAN 8 INCHES THICK, AT A MOISTURE CONTENT AT OR NEAR OPTIMUM, AND COMPACT TO AT LEAST 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM SPECIFICATION D-1557 (MODIFIED PROCTOR METHOD), OR TO OTHER DENSITY AS DETERMINED BY THE GEOTECHNICAL ENGINEER. PLACE FILL IN LANDSCAPE AREAS IN LOOSE LIFTS 12 INCHES THICK AND COMPACT TO 90% OF MAXIMUM STANDARD PROCTOR DENSITY. FILL-FILL MATERIALS SHALL BE CLEAN GRANULAR MATERIAL. SUITABLE ON-SITE CUT MATERIAL MAY BE USED FOR REQUIRED FILLS. PROVIDE ADDITIONAL OFF-SITE FILL AS NECESSARY TO BRING SITE TO REQUIRED GRADES. FILL MATERIALS SHALL BE APPROVED BY GEOTECHNICAL ENGINEER. H. THE SURFACE VEGETATION, TOPSOIL, AND ANY OBVIOUSLY SOFT UNDERLYING SOIL SHOULD BE STRIPPED FROM ALL AREAS TO RECEIVE FILL. IF THE UNDERLYING SUBGRADE SOILS RUT DEEPER THAN ONE INCH (1") UNDER THE CONSTRUCTION EQUIPMENT OR IF THE MOISTURE CONTENT EXCEEDS THAT NEEDED FOR PROPER COMPACTION, THE SOIL SHALL BE SCARIFIED, DRIED AND RE-COMPACTED TO NINETY-FIVE PERCENT (95%) OF MODIFIED PROCTOR WITHIN BUILDING PAD AND PAVEMENT AREAS. IF UNSUITABLE BEARING SOILS ARE REMOVED FROM BENEATH PROPOSED FOOTINGS, EXCAVATION SHALL EXTEND LATERALLY BEYOND PERIMETER OF FOUNDATION FOR A DISTANCE AT LEAST EQUAL TO THICKNESS OF BACKFILL BELOW FOOTING BASE. THIS PROVISION SHALL ALSO APPLY WHERE A RAISED STRUCTURAL PAD IS CONSTRUCTED TO ACHIEVE A BEARING ELEVATION GREATER THAN THE EXISTING GRADES. UNSUITABLE MATERIALS: EXCAVATE ORGANIC, FROZEN, WET, SOFT, AND LOOSE SOILS (INCLUDING PREVIOUSLY PLACED UNCOMPACTED FILL SOILS); BOLDERS; REMNANTS OF PREVIOUS CONSTRUCTION; AND OTHER UNSUITABLE MATERIALS FROM BENEATH PROPOSED FOUNDATIONS, SLABS, PAVEMENTS, AND DETENTION POND DIKES. THE COST OF THIS WORK SHALL BE INCLUDED IN THE BASE BID FOR THE PROJECT. ALL UNSUITABLE MATERIAL AND ALL SURPLUS EXCAVATED MATERIAL NOT REQUIRED SHALL BE REMOVED FROM THIS SECTION. THE LOCATION OF DUMP AND LENGTH OF HAUL SHALL BE THE CONTRACTOR'S RESPONSIBILITY WITH THE OWNER'S APPROVAL, PRIOR TO EXPORTING FILL FROM SITE. AN ADDITIONAL EROSION AND SEDIMENT CONTROL PLAN MUST BE SUBMITTED AS AN AMENDMENT/ADDITION TO THIS PROJECT.
7. UNDERGROUND UTILITIES	A. THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS, FROM THE RESPECTIVE UTILITY OWNERS, AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THEY ARE ESSENTIALLY CORRECT BUT THE OWNER DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. B. THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, TYPE & MATERIAL, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL EFFECT ON THE PROPOSED IMPROVEMENTS. C. UTILITY NOTIFICATION: AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA WHICH MAY INVOLVE UNDERGROUND UTILITY FACILITIES, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE UTILITY PROTECTION SERVICE AND THE OWNERS OF ANY UNDERGROUND UTILITY FACILITY SHOWN IN THE PLANS. D. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE CONTINUITY OF SERVICE TO THE OVERALL UTILITY SYSTEMS AS ISOLATED REMOVALS OF SYSTEM COMPONENTS OCCURS AND AS NEW COMPONENTS ARE ADDED AND CONNECTED TO THE VARIOUS SYSTEMS. E. IF ACTIVE UTILITIES ARE ENCOUNTERED BUT NOT SHOWN ON THE DRAWINGS, THE OWNER SHALL BE ADVISED BEFORE WORK IS CONTINUED. F. INACTIVE AND ABANDONED UTILITIES ENCOUNTERED IN EXCAVATING AND GRADING OPERATIONS SHALL BE REPORTED TO THE OWNER. THEY SHALL BE REMOVED, PLUGGED OR CAPPED AS DIRECTED BY THE UTILITY COMPANY OR THE ENGINEER. G. CONNECTIONS TO EXISTING PIPE: WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT. H. MAINTENANCE OF SEWER FLOWS: THE CONTRACTOR SHALL SO CONDUCT HIS OPERATIONS SO AS TO MAINTAIN AT ALL TIMES SEWER FLOWS THROUGH EXISTING FACILITIES. I. ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT IS ACCEPTED.	16. TRENCHING FOR UTILITIES	A. EXCAVATE TRENCHES SO THAT PIPE CAN BE LAID SAFELY AND ACCURATELY TO REQUIRED LINE AND GRADE. HAND EXCAVATE FOR BELLS, FITTINGS AND PROJECTIONS TO ALLOW FOR PROPER JOINTING AND TO INSURE THAT PIPE RESTS EVENLY ALONG BARREL AND IS NOT RESTING ON BELL. B. IF ROCK IS ENCOUNTERED DURING TRENCHING, CONTACT OWNER BEFORE PROCEEDING FURTHER WITH AFFECTED PIPELINE. C. DEWATER TRENCHES AS REQUIRED TO PROVIDE STABLE BEDDING FOR PIPE. DEWATERING WILL BE INCIDENTAL TO WORK; NO ADDITIONAL COMPENSATION WILL BE ALLOWED. D. WHEN TRENCH BOTTOM IS UNSTABLE BECAUSE OF GROUND WATER, GEOTECHNICAL ENGINEER MAY REQUIRE EXTRA EXCAVATION TO REMOVE UNSTABLE MATERIAL AND REPLACE IT WITH CRUSHED STONE. E. IN SAND AND GRAVEL SOILS, BOTTOM OF TRENCH MAY BE SHAPED TO FIT BOTTOM 1/3 OF PIPE. IN SILT AND CLAY SOILS, BOTTOM OF TRENCH SHALL BE 4 INCHES BELOW PIPE BARREL AND 3 INCHES BELOW BELL. IN ROCK, BOTTOM OF TRENCH SHALL BE 6 INCHES BELOW PIPE BARREL. UNDER FOUNDATIONS AND FOOTINGS, BOTTOM OF TRENCH SHALL BE 8 INCHES BELOW PIPE BARREL. F. BEDDING, HAUNCHING, AND INITIAL BACKFILL FOR RIGID PIPES SHALL BE IN ACCORDANCE WITH ASTM C112, CLASS C OR BETTER. TRENCHES DUG-IN SANDY OR GRAVEL MATERIALS MAY USE UNDISTURBED EARTH FOR BEDDING PROVIDED SURFACE IS SHAPED TO CONFORM TO PIPE. PROVIDE GRANULAR BEDDING IN ALL OTHER TRENCHES FROM SUBGRADE TO A POINT SUPPORTING BOTTOM 1/3 OF PIPE FOR RIGID PIPE AND TO SPRINGLINE (MID-HEIGHT) FOR FLEXIBLE PIPE. PLACE AND COMPACT BEDDING SO THAT IT FILLS AND SUPPORTS PIPE HAUNCH AREA. G. PROVIDE TAMPED GRANULAR INITIAL BACKFILL UP TO A MINIMUM DEPTH OF 1 FOOT ABOVE PIPE. TAKE SPECIAL CARE IN PLACING AND TAMPING INITIAL BACKFILL MATERIAL SO ALIGNMENT AND GRADE OF PIPE IS NOT DISTURBED NOR PIPE DAMAGED. H. BACKFILL MORE THAN 1 FOOT OVER PIPE SHALL BE GRANULAR BACKFILL. COMPACT BACKFILL IN ACCORDANCE WITH REQUIREMENTS OF "SITE GRADING" ARTICLE. I. GRANULAR BEDDING SHALL BE PLACED WITH A MINIMUM THICKNESS OF 6 INCHES (6") BENEATH THE BARREL AND BELL OF THE PIPE. THE 6 INCH (6") GRANULAR BEDDING BENEATH THE PIPE SHALL BE TAMPED PRIOR TO THE PIPE PLACEMENT. GRANULAR BEDDING SHALL EXTEND UP AND AROUND THE PIPE TO 12 INCHES (12") ABOVE THE PIPE AND SHALL BE COMPACTED IN GRAVEL AGGREGATE FOR PVC PIPE. BEDDING SHALL BE COMPACTED IN ACCORDANCE WITH STATE DOT STANDARD SPECIFICATIONS. J. PIPE BACKFILL SHALL INCLUDE THE MATERIAL PLACED OVER THE PIPE EMBEDMENT MATERIAL. TRENCHES COMING WITHIN FIVE FEET (5') OF PAVED OR STONED STREETS, ALLEYS, DRIVEWAYS, SIDEWALKS, AND PARKING AREAS SHALL BE BACK FILLED FOR THEIR FULL DEPTH WITH GRANULAR MATERIAL MEETING THE REQUIREMENT OF BACKFILL FOR TYPE "B" CONDUITS. THE TOP OF THE BACKFILL SHALL EXTEND FROM FIVE FEET (5') OUTSIDE CURB TO FIVE FEET (5') IF APPLICABLE. THE COST OF PROVIDING THE COMPACTED GRANULAR BACKFILL SHALL BE INCLUDED IN THE CONTRACTORS BID. GRANULAR BACKFILL SHALL BE MECHANICALLY COMPACTED 304 STONE AND SHALL BE COMPACTED TO 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST.
8. REMOVALS	REMOVAL OF EXISTING PAVEMENT SHALL BE ACCOMPLISHED BY SAW CUTTING IN A NEAT, STRAIGHT LINE TO PROVIDE A SMOOTH VERTICAL SURFACE. FOR ASPHALT PAVEMENT ENSURE THAT THE JUNCTURE BETWEEN NEW AND EXISTING PAVEMENT IS FLUSH AND MADE IN A MANNER TO ENSURE A CONTINUOUS BOND. CLEAN FACE AND APPLY A TACK COAT JUST PRIOR TO PLACING NEW ASPHALT PAVEMENT PER THE APPROPRIATE SECTION SHOWN ON THE PLANS. FOR CONCRETE PAVEMENT APPLY A BONDING AGENT JUST PRIOR TO PLACING NEW CONCRETE PAVEMENT PER THE SECTION ON THIS PLANS.	17. WATERLINE	THE SPECIFICATIONS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE, AMERICAN WATER WORKS ASSOCIATION AND THE AMERICAN SOCIETY OF TESTING AND MATERIALS HEREIN REFERRED TO FOR WATER SERVICE MAIN PIPE, GATE VALVES, FIRE HYDRANTS, AND OTHER APPURTENANCES, UNLESS OTHERWISE NOTED, SHALL BE THE LATEST SPECIFICATIONS AND STANDARDS OF THE RESPECTIVE ORGANIZATIONS. REFERENCE STANDARDS THE WORK SHALL CONFORM TO APPLICABLE PROVISIONS OF THE FOLLOWING REFERENCE STANDARDS, LATEST EDITION, EXCEPT AS MODIFIED HEREIN. ASTM A356 AWWA C111 STANDARD SPECIFICATIONS FOR DUCTILE IRON CASTINGS RUBBER-GASKET JOINTS FOR DUCTILE-IRON PRESSURE PIPE AND FITTINGS AWWA C151 AWWA C153 AWWA C104 AWWA C102 AWWA C508 AWWA C600 AWWA C605 DUCTILE IRON CENTRIFUGALLY CAST DUCTILE IRON COMPACT FITTINGS FOR WATER SERVICE CEMENT-MORTAR LINING FOR DUCTILE-IRON PIPE AND FITTINGS DRY-BARREL FIRE HYDRANTS RESILIANT-SEATED GATE VALVES FOR WATER SUPPLY SERVICE INSTALLATION OF DUCTILE-IRON WATER MAINS AND THEIR APPURTENANCES UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS FOR WATER DISINFECTING WATER MAINS UNDERGROUND SERVICE LINE VALVE AND FITTINGS POLYETHYLENE (PE) PRESSURE PIPE AND TUBING, 3/4 IN. THROUGH 3 IN. FOR WATER SERVICE AWWA C900 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FABRICATED FITTINGS, 4 IN. THROUGH 12 IN. FOR WATER TRANSMISSION AND DISTRIBUTION. AWWA C905 POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FABRICATED FITTINGS, 14 IN. THROUGH 48 IN. AWWA C909 MOLECULARLY ORIENTED POLYVINYL CHLORIDE (PVCO) PRESSURE PIPE 4 IN. THROUGH 24 IN. FOR WATER, WASTEWATER AND RECLAIMED WATER SERVICE. OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION MATERIALS SPECIFICATIONS TEN STATE STANDARDS - RECOMMENDED STANDARDS FOR WATER WORKS. CONFORMANCE TO THE TEN STATES STANDARDS SHALL BE EQUALLED OR EXCEEDED FOR WATER LINES. PARTICULAR EMPHASIS SHALL BE PUT UPON THE FOLLOWING SECTIONS OF PART 8: 8.0.1 MATERIALS CONFORM TO AWWA STANDARDS 8.1.2 MINIMUM 6" DIAMETER PIPE FOR FIRE PROTECTION 8.5.3 MINIMUM 4" GROUND COVER 8.5.5 PRESSURE TESTING AWWA C-600" 8.5.6 DISINFECTION AWWA C-651" 8.6.2 VERTICAL SEPARATION MAIN/SEWER (18") 8.6.3 HORIZONTAL SEPARATION MAIN/SEWER (10") 8.6.6 NO ENTRY AND NO CONTACT WITH SEWER MANHOLES ANY DEVIATION FROM THE ABOVE WILL NOT BE PERMITTED. IN CASES WHERE ONE AND/OR MORE OF THE ABOVE MENTIONED STANDARDS FALL SHORT OF THE WATER DEPARTMENT STANDARDS, THE LATTER SHALL GOVERN.
9. PROTECTION	A. PROTECT IMPROVEMENTS ON SITE AND ON ADJOINING PROPERTIES. PROVIDE BARRICADES, COVERINGS, OR OTHER TYPES OF PROTECTION AS NECESSARY TO PREVENT DAMAGE AND TO SAFEGUARD AGAINST INJURY. RESTORE TO ORIGINAL CONDITION IMPROVEMENTS DAMAGED BY THE WORK OR IMPROVEMENTS WHICH REQUIRED TEMPORARY REMOVAL DURING CONSTRUCTION. B. THE CONTRACTOR SHALL PROVIDE SHORING, BRACING, LATERAL SUPPORTS, ETC. AND TAKE WHATEVER PRECAUTIONS NECESSARY TO PREVENT THE UNDERMINING OF ADJACENT EXISTING FOUNDATIONS AND MAINTAIN THE STRUCTURAL INTEGRITY OF EXISTING STRUCTURES. C. THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION AGAINST DAMAGE TO ALL EXISTING UTILITIES, STRUCTURES, AND COMPLETED PORTIONS OF THE WORK, AND TO PREVENT INJURIES TO PERSONS. IT SHALL BE THE CONTRACTORS SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL UTILITIES, STRUCTURES, AND ADJUTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE SOLELY BY THE CONTRACTOR. THE CONTRACTOR SHALL MAINTAIN FULL RESPONSIBILITY FOR ALL METHODS, MEANS AND PROCEDURES RELATED TO CONSTRUCTION.	18. WATER MAIN INSTALLATION	WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF MANUFACTURER AND AWWA C600 AND AWWA C605. ALL WATERLINES SHALL BE INSTALLED WITH A MINIMUM OF 5 FEET OF GROUND COVER, AS MEASURED FROM THE TOP OF THE PIPE TO FINISHED GRADE OR AS MODIFIED ON THE PLANS. WATERLINE SERVICE CONNECTIONS SHALL BE INSTALLED WITH A MINIMUM OF 4 FEET OF COVER. PIPE SECTIONS LESS THAN 10-FEET IN LENGTH SHALL NOT BE USED WHERE A FULL PIPE SECTION CAN BE USED. ALL PIPES SHALL BE THOROUGHLY CLEANED INSIDE AND OUTSIDE BEFORE BEING LOWERED INTO THE TRENCH AND SHALL BE KEPT CLEAN DURING THE INSTALLATION. THE END OF THE PIPE SHALL BE PLUGGED TO EXCLUDE WATER, ANIMALS OR OTHER DEBRIS FROM ENTERING PIPE. GENERAL NOTES WATER MAINS SHALL BE TESTED AND STERILIZED UNDER THE DIRECT SUPERVISION OF WATER DEPARTMENT PERSONNEL. MATERIAL TO BE FURNISHED BY THE CONTRACTOR ACCORDING TO SPECIFICATIONS. ALL EXCAVATION AND BACKFILL TO BE PERFORMED BY THE CONTRACTOR, UNLESS OTHERWISE SPECIFIED. THE WATER DEPARTMENT SHALL BE NOTIFIED IN WRITING BY THE CONTRACTOR AT LEAST SEVEN (7) DAYS BEFORE BEGINNING ANY WATER MAIN CONSTRUCTION. ONLY WATER DEPARTMENT PERSONNEL ARE TO OPERATE WATER DEPARTMENT MAINS.
		LEAKAGE TESTING THE CONTRACTOR SHALL MAKE PRESSURE AND LEAKAGE TESTS OF ALL PIPELINES IN ACCORDANCE WITH AWWA C600. PRESSURE TEST SHALL BE MADE IN ALL PIPELINES OR VALVED SECTIONS. THE CONTRACTOR SHALL FURNISH THE PUMP, PIPE CONNECTIONS, TAPS, GAUGES, AND ALL OTHER APPURTENANCES FOR MAKING THE TEST. THE LINE, OR SECTION THEREOF TO BE TESTED, SHALL BE SLOWLY FILLED WITH WATER AND ALL AIR EXPELLED BEFORE MAKING THE TEST. HYDROSTATIC PRESSURE SHALL BE APPLIED BY MEANS OF A PUMP, TAKING WATER FROM AN AUXILIARY SUPPLY. THE TEST PRESSURE SHALL BE 150 PSI, OR TWO (2) TIMES THE NORMAL OPERATING PRESSURE OF THE SECTION UNDER TEST, WHICHEVER IS THE GREATER. THE PRESSURE SHALL BE MAINTAINED FOR A MINIMUM OF TWO (2) HOURS, OR FOR SUFFICIENT TIME FOR THOROUGH INSPECTION OF PIPING, FITTINGS, VALVES, HYDRANTS, ETC. BY MEANS OF A CONTINUOUS RUNNING PUMP. LEAKING JOINTS SHALL BE TIGHTENED, AND CRACKED OR OTHERWISE DEFECTIVE MATERIAL SHALL BE REMOVED AND REPLACED AND THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED. LEAKAGE TESTS SHALL BE MADE SIMULTANEOUSLY WITH OR FOLLOWING COMPLETION OF PRESSURE TESTS OF ALL PIPE LINES OR VALVED SECTIONS THEREOF. THE CONTRACTOR SHALL FURNISH THE PUMPS, GAUGES, AND OTHER APPARATUS AS DEFINED ABOVE, INCLUDING A MEASURABLE AUXILIARY WATER CONTAINER. LEAKAGE IS DEFINED AS THE QUANTITY OF WATER TO BE SUPPLIED NECESSARY TO MAINTAIN IN THE PIPING BEING TESTED THE LEAKAGE TEST PRESSURE IN SUCH PIPING FILLED WITH WATER AND FREE FROM AIR. THE LEAKAGE TEST PRESSURE SHALL BE NOT LESS THAN 150 PSI OR TWO (2) TIMES THE NORMAL OPERATING PRESSURE OF THE SECTION UNDER THE TEST. THE DURATION OF THE LEAKAGE TEST SHALL BE NOT LESS THAN TWO (2) HOURS. ALLOWABLE LEAKAGE FOR DUCTILE IRON PIPE SHALL NOT EXCEED THE RATE IN TABLE 6A OF AWWA C600-93. ALLOWABLE LEAKAGE FOR PVC PIPE SHALL NOT EXCEED THE RATE IN TABLE 3 OF AWWA C605-94.	
		24. MECHANICAL JOINT RESTRAINTS RESTRAINED JOINTS SHALL BE PROVIDED AT ALL FITTINGS AND TO THE LENGTHS, IN FEET, AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH LOCAL STANDARDS AND MANUFACTURERS RECOMMENDATIONS. MECHANICAL JOINT RESTRAINTS SHALL BE PROVIDED IN ACCORDANCE WITH ASTM A536, AWWA C111 AND AWWA C153. MECHANICAL JOINT RESTRAINTS SHALL INCLUDE A RESTRAINING MECHANISM THAT WHEN ACTUATED, IMPACTS MULTIPLE WEDGING ACTIONS AGAINST THE PIPE, INCREASING ITS RESISTANCE TO MOVEMENT AS INTERNAL PIPE PRESSURE INCREASES. THE JOINT SHALL MAINTAIN SOME FLEXIBILITY FOLLOWING PLACEMENT OF FINAL BEDDING AND BACKFILL. THE RESTRAINING DEVICE SHALL BE CONSTRUCTED OF DUCTILE IRON HEAT TREATED TO A HARDNESS OF 370 BHN WITH A MINIMUM WORKING PRESSURE OF 250 PSI AND AN SAFETY FACTOR OF 2:1. RESTRAINED JOINTS FOR FITTINGS SHALL BE MEGA-LUG SERIES 2000, AS MANUFACTURED BY EBAA IRON, INC., OR EQUAL. CONCRETE THRUST BLOCKING IS ALSO REQUIRED. BELL CLAMP RESTRAINT FOR DIP WITH PUSH-ON JOINTS, WHERE REQUIRED, SHALL BE SERIES 800 "COVERALL," AS MANUFACTURED BY EBAA IRON, INC., OR EQUAL. ALL BOLTS AND NUTS SHALL BE COR-TEN. ALL OTHER HARDWARE SHALL BE DUCTILE IRON. DIMENSIONS OF THE JOINT RESTRAIN SHALL BE SUCH THAT IT CAN BE USED WITH STANDARD MECHANICAL JOINT BELL AND TEE-HEAD BOLTS CONFORMING TO AWWA C111. TWIST-OFF NUTS SHALL BE USED TO INSURE PROPER ACTION OF THE RESTRAINING DEVICES. THE CONTRACTOR SHALL PROVIDE THRUST BLOCKING AS SHOWN ON THE PLAN DETAIL SHEET. WATERMAIN PIPE SHALL BE ANCHORED USING MECHANICAL JOINT RESTRAINTS AT ALL DEAD ENDS, BENDS, TEES, VALVES AND CHANGES IN DIRECTION OF THE PIPE IN ACCORDANCE WITH THE APPLICABLE TABLE AS SHOWN ON THE PLAN DETAIL SHEET. WATERMAIN PIPE SHALL BE ANCHORED USING MECHANICAL JOINT RESTRAINTS AT ALL DEAD ENDS, BENDS, TEES, VALVES AND CHANGES IN DIRECTION OF THE PIPE IN ACCORDANCE WITH THE APPLICABLE TABLE AS SHOWN ON THE PLAN DETAIL SHEET. ALL DETECTABLE TRACING WIRE SHALL BE INSTALLED WITH ALL WATER MAINS. THE WIRE SHALL BE INSULATED NO. 12 COPPER ELECTRICAL WIRE (THW), SPLICES IN TRACING WIRE SHALL BE MADE WITH SHRINK TUBE BUTT-END ELECTRICAL CONNECTORS. THE TRACING WIRE SHALL BE CONNECTED TO EACH FIRE HYDRANT AND SHALL BE PLACED UNDER THE PIPE. IF THE WATERLINE ENDS AT A VALVE BOX, THE TRACING WIRE SHALL BE PLACED OUTSIDE OF THE VALVE BOX AND THEN ENTER THE VALVE BOX THROUGH A HOLE DRILLED BY THE CONTRACTOR APPROXIMATELY 8 INCHES BELOW THE TOP OF THE VALVE BOX.	
		25. GATE VALVES VALVES: VALVES 4 INCHES THROUGH 16 INCHES SHALL BE OF RESILIENT-SEATED GATE VALVE DESIGN. THE VALVES SHALL BE CONSTRUCTED WITH IRON BODY, FUSION BONDED EPOXY COATING ON ALL INTERIOR AND EXTERIOR SURFACES, NON-RISE VALVE STEM, THE VALVE WEDGE SHALL BE DUCTILE IRON COMPLETELY ENCLOSED IN	

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GENERAL NOTES

DRAWN BY: CHECKED BY:
MEK KAM

DATE:
4/12/19

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OF

JOB NUMBER
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