SHELBYVILLE RETAIL

1814 E STATE ROAD 44
SHELBYVILLE, IN
JOB NO. W23237.00
SEPTEMBER 14, 2023
FINAL ENGINEERING PLAN FOR PERMIT

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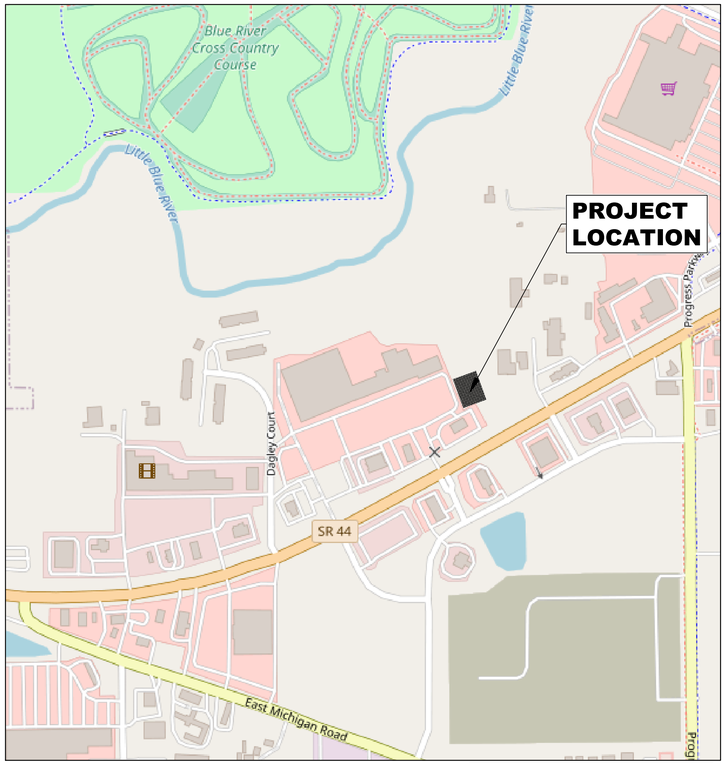

COUNTY: SHELBY
TOWNSHIP: 12N
RANGE: 7E
SECTION: 32

LOCATION MAP

ZONING - SHELBY COUNTY

PREPARED FOR:
KOLBROOK DESIGN INC.

828 DAVIS STREET, SUITE 300
EVANSTON, IL 60201
(847) 492-1991

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CITY ENGINEER	(317) 392-5102
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Indiana 811
KNOW WHAT'S BELOW.
CALL BEFORE YOU DIG.
Call 811 or 800-382-5544 Before you Dig!

ENGINEERING
RESOURCE ASSOCIATES

2416 GALEN DRIVE
CHAMPAIGN, ILLINOIS 61821
PHONE (217) 351-6268
FAX (217) 355-1902

3S701 WEST AVENUE, SUITE 150
WARRENVILLE, ILLINOIS 60555
PHONE (630) 393-3060
FAX (630) 393-2152

10 S. RIVERSIDE PLAZA , SUITE 875
CHICAGO, ILLINOIS 60606
PHONE (312) 474-7841
FAX (312) 474-6099

TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THE DRAINAGE OF THE SURFACE WATERS WILL NOT BE CHANGED BY THE CONSTRUCTION OF THESE LOT IMPROVEMENTS OR ANY PART THEREOF, OR THAT IF SUCH WATER DRAINAGE WILL BE CHANGED, REASONABLE PROVISIONS HAVE BEEN MADE FOR THE COLLECTION AND DIVERSION OF SUCH WATERS INTO PUBLIC AREAS OR DRAINS WHICH THE OWNER HAS A RIGHT TO USE, AND THAT SUCH SURFACE WATERS WILL BE PLANNED FOR IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES. SO THAT THE DEVELOPMENT SHALL NOT ADVERSELY INCREASE FLOOD ELEVATIONS OR DECREASE FLOOD CONVEYANCE CAPACITY UPSTREAM OR DOWNSTREAM OF THE PROJECT AREA.

Engineer:_____

Seal:

JOHN F. MAYER
REGISTERED
No. PE10708044
STATE OF INDIANA
PROFESSIONAL ENGINEER
Exp. 7/31/22

John Mayer
IN. P.E. NO. 10708044
Expires JULY 31, 2024

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

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SHELBYVILLE RETAIL
1814 E STATE ROAD 44, SHELBYVILLE, IN
PROJECT # W23237

10-10-2023 REVISE PER CITY COMMENTS

DESCRIPTION:

DATE	: 9-14-2023
PROJECT #	: W23237.00
DESIGNED BY	: TBD
DRAWN BY	: TBD
CHECKED BY	: TBD

COVER

C-1.0
SHEET

G:\PROJECTS\KolbrookDesignInc\W23237.00 1814 E State Road 44, Shelbyville, IN\CADD\Sheet\W23237.00 Sheet 1.0 Cover.dwg

GENERAL NOTES

1. AT LEAST TWO WORKING DAYS PRIOR TO THE COMMENCEMENT OF ALL PHASES OF WORK, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING:

   CITY OF SHELBYVILLE: (317) 398-6624
   ENGINEERING RESOURCE ASSOCIATES: (630) 393-3060

2. UTILITY INFORMATION IS BASED UPON FIELD MEASUREMENTS AND BEST AVAILABLE RECORDS. FIELD DATA IS LIMITED TO THAT WHICH IS VISIBLE AND CAN BE MEASURED. THIS DOES NOT PRECLUDE THE EXISTENCE OF OTHER UNDERGROUND UTILITIES.

3. THE CONTRACTOR SHALL NOTIFY THE INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR (811 OR 1-800-382-5544) 48 HOURS PRIOR TO ANY EXCAVATION WORK TO DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES.

4. EXCEPT WHERE MODIFIED BY THE CONTRACT DOCUMENTS, ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING DOCUMENTS:
   "INDIANA DEPARTMENT OF TRANSPORTATION DESIGN MANUAL"
   "INDIANA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS"

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC.

6. UNLESS WRITTEN AUTHORIZATION IS OBTAINED FROM THE INDIANA DEPARTMENT OF TRANSPORTATION, ALL OPENINGS IN ANY PAVEMENT OR TRAVELED WAY SHALL BE BACKFILLED PRIOR TO THE END OF THE WORKING DAY.

7. THE CONTRACTOR SHALL ESTABLISH THE NECESSARY PERFORMANCE BONDS REQUIRED. PERMITS SHALL BE OBTAINED FROM ALL OUTSIDE GOVERNMENTAL AGENCIES HAVING JURISDICTION PRIOR TO INITIATION OF CONSTRUCTION ACTIVITIES.

8. THE CONTRACTOR IS RESPONSIBLE FOR HAVING THE MOST RECENT SET OF THE "APPROVED" FINAL ENGINEERING PLANS WITH THE LATEST REVISION DATE ON THE JOB SITE PRIOR TO THE START OF CONSTRUCTION.

9. THE CONTRACTOR IS TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION AND WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE SAME.

10. CONTRACTOR SHALL RESTORE OFF-SITE SURFACES TO ORIGINAL CONDITION IF DAMAGED BY CONSTRUCTION.

11. THE CONTRACTOR IS TO PROVIDE THE CITY ENGINEER WITH RECORD DRAWINGS OF ALL UTILITIES SHOWING LOCATIONS OF ALL SEWER PIPE, MAINS, SERVICE STUBS, AND STRUCTURES.

12. THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE CONTRACTORS MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND PROGRAMS INCIDENT THERETO, AND THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO PERFORM OR FURNISH THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

13. THE ENGINEER WARRANTS THE DESIGN, RECOMMENDATIONS, AND SPECIFICATIONS TO HAVE BEEN PROMULGATED ON CONDITIONS GENERALLY ENCOUNTERED WITHIN THE INDUSTRY. THE ENGINEER ASSUMES NO RESPONSIBILITY WHATSOEVER, WITH RESPECT TO THE DESIGN RECOMMENDATIONS AND SPECIFICATIONS, FOR COMPLEX OR UNUSUAL SOIL CONDITIONS ENCOUNTERED ON THE PROJECT. IT SHALL BE THE OWNER'S/BIDDER'S RESPONSIBILITY TO ASCERTAIN THE EXACT NATURE OF SUBSURFACE CONDITIONS PRIOR TO THE CONSTRUCTION OF THE IMPROVEMENT.

14. ALL TRENCHES CAUSED BY THE CONSTRUCTION OF SEWERS, WATERMAINS, WATER SERVICE PIPES AND IN EXCAVATIONS AROUND CATCH BASINS, MANHOLES, INLETS, AND OTHER APPURTENCES WHICH OCCUR WITHIN FIVE FEET OF THE LIMITS OF EXISTING AND PROPOSED IMPROVEMENTS, SIDEWALKS, AND CURB AND GUTTERS SHALL BE BACKFILLED WITH TRENCH BACKFILL AS WELL AS AREAS INDICATED ON THE PLANS.

15. AT LEAST 2 WORKING DAYS BEFORE COMMENCEMENT OF ANY WORK ACTIVITIES, THE CONTRACTOR WILL BE REQUIRED TO ATTEND AN ON-SITE PRECONSTRUCTION CONFERENCE. AT THIS CONFERENCE, THE CONTRACTOR WILL BE REQUIRED TO FURNISH AND DISCUSS INCLUDING BUT NOT LIMITED TO THE FOLLOWING: 1) WRITTEN PROGRESS SCHEDULE AND BEGINNING OF WORK 2) NAMES OF PROJECT MANAGER, FIELD SUPERINTENDENT AND THE NAME AND PHONE NUMBER OF A RESPONSIBLE INDIVIDUAL WHO CAN BE REACHED 24 HOURS A DAY.

16. IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO APPLY FOR ALL REQUIRED EPA PERMITS AND COMPLY WITH ALL EPA RULES AND REGULATIONS.

17. THE CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE WATER VALVES OR HYDRANTS. THE CONTRACTOR SHALL CALL THE CITY OF CONNERSVILLE UTILITIES DEPARTMENT 24 HOURS PRIOR TO THE NEED TO OPERATE VALVES OR HYDRANTS.

18. THE OWNER SHALL PROVIDE A FULL AND COMPLETE CIVIL ENGINEERING RECORD DRAWING PLAN SET IN HARD COPY AND MICROSTATION OR AUTOCAD AT THE COMPLETION OF THE PROJECT. THE RECORD DRAWINGS SHALL INCLUDE ANY CHANGES FROM THE ORIGINAL CIVIL ENGINEERING PLANS. CURRENT ELEVATIONS SHALL BE SHOWN FOR THE FOLLOWING, AT A MINIMUM:

   (1) ALL RIM AND INVERTS
   (2) GRADE INFLECTION POINTS WITH PERIODIC GRADES SHOT IN LEVEL AREAS
   (3) ANY ADDITIONAL INFORMATION SET FORTH BY THE CITY OF CONNERSVILLE.

19. DUST CONTROL WILL BE IN ACCORDANCE WITH INDOT "STANDARD SPECIFICATIONS.

PAVEMENT, SIDEWALK:

1. PAVEMENT THICKNESS SHALL COMPLY WITH THE CITY OF SHELBYVILLE REQUIREMENTS.

2. HANDICAPPED RAMPS AND DEPRESSED CURBS SHALL BE PROVIDED AT LOCATIONS SHOWN ON PLANS.

3. EXPANSION JOINTS SHALL BE PLACED, AS A MINIMUM AT ALL CONSTRUCTION JOINTS IN THE CURB. TWO NO.4 REINFORCING BARS SHALL BE PLACED CONTINUOUSLY BETWEEN EXPANSION JOINTS. EXPANSION JOINTS SHALL BE DOWELED AND SPACED NO MORE THAN SIXTY (60) FEE ON CENTER.

4. PRIOR TO PLACING ANY PAVEMENT MATERIAL, THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY PREPARING AND COMPACTING THE SUBGRADE. THE PAVEMENT BASE COURSE SHALL BE PROOF-ROLLED WITH A FULLY LOADED DUMP TRUCK. THE ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS BEFORE PROOF-ROLLING. ADITIONAL PROOF-ROLLS MAY BE NECESSARY OT VERIFY THAT ANY UNSTABLE AREAS HAVE BE REPAIRED. NO PAVEMENT MATERIAL IS TO BE PLAVED ON A WET OR SOFT SUBGRADE.

5. ALL EXISTING PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAWCUT TO A NEAT EDGE ALONG LIMITS OF PROPOSED REMOVAL BEFORE REMOVAL OPERATIONS BEGIN.

SOIL EROSION CONTROL PLAN:

1. THE PROJECT AREA SHALL BE GRADED SO A MINIMAL AMOUNT OF STORM WATER RUNOFF AND LIKEWISE SOIL SEDIMENT WILL DISCHARGE UNRESTRICTED FROM THE SITE.

2. IN ACCORDANCE WITH NPDES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EROSION CONTROL PROTECTION DURING CONSTRUCTION AS WELL AS PROVIDING PROTECTION TO ADJOINING STREETS FROM MUD AND POLLUTED RUNOFF AS WELL AS KEEPING EXISTING PAVEMENT CLEAN OF MUD AND DEBRIS. PAVEMENT SWEEPING OF CITY ROADS SHALL BE PERFORMED AS NECESSARY OR AT THE DIRECTION OF THE CITY ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AND CLEANED OR OTHERWISE MAINTAINED ON A WEEKLY BASIS, AND WITHIN 24 HOURS AFTER ANY SIGNIFICANT RAINFALL (0.5 INCHES OR GREATER) TO INSURE THAT ANY DAMAGE THAT MAY HAVE OCCURRED IS REPAIRED. ALL EROSION CONTROL INSTALLATION SHALL BE APPROVED BY CITY OF CONNERSVILLE ENGINEERING DIVISION PERSONNEL BEFORE CONSTRUCTION IS ALLOWED TO BEGIN.

3. INLET PROTECTORS SHALL BE USED IN ALL STORM GRATES DURING CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL THE RESTORATION IS SUFFICIENTLY ESTABLISHED. THE INLET PROTECTORS SHALL BE MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL KEEP A MAINTENANCE LOG. THE CITY ENGINEER CAN DETERMINE IF ADDITIONAL PRACTICES ARE NEEDED FOR BETTER SOIL EROSION AND SEDIMENT CONTROL.

4. SILT FENCING SHALL REMAIN IN PLACE THROUGH THE CONSTRUCTION OF HOUSE/BUILDINGS TO SERVE AS EROSION CONTROL FOR AT THAT CONSTRUCTION.

5. TO PREVENT SOIL FROM LEAVING THE SITE ON CONSTRUCTION VEHICLE WHEELS, WORK ENTRANCES SHALL BE CONSTRUCTED OF GRAVEL AND SHALL EXTEND AT LEAST 100 FEET INTO THE JOB SITE. THE EXISTING PAVEMENT SURFACES SHALL BE INSPECTED DAILY FOR SOIL DEBRIS AND SHALL BE CLEANED WHEN NECESSARY.

6. ANY TOPSOIL THAT WILL BE STOCKPILED ON SITE SHALL BE MANAGED IN ACCORDANCE WITH THE CURRENT NPDES REGULATIONS. IF THE STOCKPILE WILL REMAIN ON SITE FOR AN EXTENDED PERIOD, IT SHALL BE STABILIZED WITH GRASS AND\OR OTHER VEGETATION AND SILT FENCING SHALL BE PLACED AROUND THE STOCKPILE.

7. ALL ACCESS TO AND FROM THE CONSTRUCTION SITE IS TO BE RESTRICTED TO THE CONSTRUCTION ENTRANCE.

8. ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE EFFECTIVE PERFORMANCE OF THEIR INTENDED FUNCTION.

9. THE ENGINEER SHALL BE NOTIFIED OF MAJOR AMENDMENTS OF THE SITE DEVELOPMENT OR EROSION AND SEDIMENTATION CONTROL PLANS, WHICH WILL BE APPROVED IN THE SAME MANNER AS THE ORIGINAL PLANS.

10. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED BY SHOVELING OR STREET CLEANING (NOT FLUSHING) BEFORE THE END OF EACH WORKDAY AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL.

11. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DISPOSED OF WITHIN 30 DAYS AFTER THE FINAL SITE STABILIZATION IS ACHIEVED WITH PERMANENT SOIL STABILIZATION MEASURES

12. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN 7 CALENDAR DAYS FOLLOWING THE END OF ACTIVE DISTURBANCE OR REDISTURBANCE"

13. IF DEWATERING DEVICES ARE USED, DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION. ALL PUMPED DISCHARGES SHALL BE ROUTED THROUGH APPROPRIATELY DESIGNED SEDIMENT TRAPS OR BASINS.

SITE GRADING:

1. EXCAVATION OF TOPSOIL AND OTHER STRUCTURALLY UNSUITABLE MATERIALS MAY REQUIRE EARTH EXCAVATION AND COMPACTED EARTH FILL MATERIAL IN ORDER TO ACHIEVE THE PLAN SUBGRADE ELEVATIONS.

2. PLACEMENT OF THE EXCAVATED MATERIAL SHALL BE IN AREAS DESIGNATED BY THE OWNER FOR FUTURE USE, WITHIN AREAS TO BE LANDSCAPED, AND THOSE ARES NOT REQUIRING STRUCTURAL FILL MATERIAL.

3. COMPACTION OF THE EXCAVATED MATERIAL PLACED IN AREAS NOT REQUIRING STRUCTURAL FILL SHALL BE MODERATE.

4. EXCESS MATERIALS, IF NOT UTILIZED AS FILL OR STOCKPILED FOR FUTURE LANDSCAPING, SHALL BE COMPLETELY REMOVED FROM THE CONSTRUCTION SITE AND DISPOSED OF BY THE CONTRACTOR.

5. EXCAVATION OF EARTH AND OTHER MATERIALS WHICH ARE SUITABLE FOR USE AS STRUCTURAL FILL: THE EXCAVATION SHALL BE TO WITHIN A TOLERANCE OF 0.3 +/- OF THE PLAN SUBGRADE ELEVATIONS. THE TOLERANCE WITHIN PAVEMENT AREAS SHALL BE SUCH THAT THE EARTH MATERIAL SHALL BALANCE AS PART OF THE FINE GRADING OPERATION.

6. PLACEMENT AND COMPACTION OF MATERIALS SHALL CONFORM TO INDOT SPECIFICATIONS.

7. THE CONTRACTOR SHALL MAINTAIN PROPER SITE DRAINAGE AT ALL TIMES DURING THE COURSE OF CONSTRUCTION AND PREVENT STORM WATER FROM RUNNING INTO OR STANDING IN EXCAVATED AREAS.

8. PAYMENT FOR THE REMOVAL OF UNSUITABLE MATERIAL (EXCLUDING TOPSOIL EXCAVATION) SHALL BE BASED ON THE QUANTITIES AS FIELD MEASURED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE AS PART OF HIS BID A UNIT PRICE PER CUBIC YARD FOR THE REMOVAL OF UNSUITABLE MATERIALS. SAID UNIT PRICE SHALL INCLUDE THE COMPLETE REMOVAL OF THE MATERIAL, REPLACEMENT WITH SUITABLE MATERIAL OBTAINED BY THE CONTRACTOR FROM A BORROW SOURCE, AND COMPACTION TO THE REQUIRED SPECIFICATIONS OF THE ENGINEER.

9. ALL DISTURBED AREAS SHALL BE RESTORED W/6" TOPSOIL AND SEED AND BLANKET UNLESS OTHERWISE INDICATED.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL THE SEDIMENTATION CONTROL MEASURES. INSPECTIONS SHALL BE CONDUCTED AFTER A RAIN EVENT, AND IF MAINTENANCE OF THE STRUCTURES IS NECESSARY, INCLUDING REPAIR OF DAMAGE AND REMOVAL OF DEPOSITS OR SEDIMENT FROM VEGETATIVE FILTERS, IT SHALL BE DONE BY THE DEVELOPER.

SANITARY SEWER:

1. ALL FLEXIBLE GRAVITY SANITARY SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321-89. ALL FLEXIBLE GRAVITY SANITARY SEWER PIPE SHALL BE PVC SDR 26 PIPE MEETING THE REQUIREMENTS OF ASTM D-3034 WITH JOINTS TO BE ELASTOMERIC GASKETS COMPLYING WITH ASTM F-477 AND PRESSURE RATED IN ACCORDANCE WITH ASTM D-3212. WATERMAIN QUALITY PVC SHALL BE PR160/SDR26 IN ACCORDANCE WITH ASTM D-2241 AND ELASTOMERIC GASKETS TO COMPLY WITH F477 AND PRESSURE RATED IN ACCORDANCE WITH ASTM D3139.

2. EMBEDMENT MATERIALS FOR BEDDING, HAUNCHING AND INITIAL BACKFILL TO AT LEAST TWELVE INCHES OVER THE TOP OF THE PIPE WITH INDOT NO. 53. PROCESSED MATERIAL PRODUCED FOR HIGHWAY CONSTRUCTION USED IN THE PROJECT CLASSIFIED ACCORDING TO PARTICLE SIZE, SHAPE AND GRADATION IN ACCORDANCE WITH ASTM D-2321-89, SECTION 9, TABLE 1.

3. THE MINIMUM BUILDING SANITARY SEWER SERVICE SIZE SHALL BE BE SIX (6) INCHES IN DIAMETER. THE SERVICE LATERAL SHALL SLOPE TOWARD THE MAIN AT THE MINIMUM RATE OF ONE (1) PERCENT.

4. NO MORE THAN TWO PRECAST ADJUSTING RINGS WITH A MAXIMUM HEIGHT ADJUSTMENT OF SIX INCHES SHALL BE ALLOWED.

5. ALL PIPE CONNECTION OPENINGS SHALL BE PRECAST WITH RESILIENT RUBBER WATER-TIGHT PIPE TO MANHOLE SLEEVES OR SEALS, PER ASTM C-923.

6. ALL SANITARY SEWER CONSTRUCTION REQUIRES SIX (6) INCHES OF INDOT NO. 53 CRUSHED GRAVEL OR CRUSHED STONE BEDDING UNDER THE PIPE. BEDDING STONE SHALL EXTEND TO A POINT TWELVE INCHES ABOVE THE TOP OF PIPE.

7. THE INSTALLATION OF SANITARY SEWER AND APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF ASTM D-2321 FOR PVC PIPE AND FITTINGS.

8. BACKFILLING OF THE TRENCH SHALL BE ACCOMPLISHED BY CAREFUL REPLACEMENT OF THE EXCAVATED MATERIAL AFTER THE PIPE, BEDDING, AND THE COVER MATERIAL HAVE BEEN INSTALLED. ANY PIPE INSTALLED UNDER OR WITHIN FIVE (5) FEET OF A PAVEMENT EDGE, SIDEWALK, OR CURB AND GUTTER SHALL BE BACKFILLED TO THE TOP OF THE TRENCH WITH INDOT NO. 53 MATERIAL.

9. "BAND-SEAL" OR SIMILAR FLEXIBLE-TYPE COUPLINGS SHALL BE USED IN THE CONNECTION OF SEWER PIPE DISSIMILAR MATERIALS. ALL CHANGES OF MATERIAL SHALL OCCUR INSIDE A MANHOLE.

10. WHEN CONNECTING TO AN EXISTING SEWER MAIN BY MEANS OTHER THAN AN EXISTING WYE, TEE, OR AN EXISTING MANHOLE, ONE OF THE FOLLOWING METHODS SHOULD BE USED: A.) CIRCULAR SAWCUT OF SEWER MAIN BY PROPER TOOLS ("SEWER-TAP" MACHINE OR SIMILAR) AND PROPER INSTALLATION OF HUB-WYE SADDLE OR HUB-TEE SADDLE. B.) REMOVE AN ENTIRE SECTION OF PIPE (BREAKING ONLY THE TOP OF ONE BELL) AND REPLACE WITH A WYE OR TEE BRANCH SECTION. C.) WITH PIPE CUTTER, NEATLY AND ACCURATELY CUT OUT DESIRED LENGTH OF PIPE FOR INSERTION OF PROPER FITTING, USING "BAND-SEAL" OR SIMILAR COUPLINGS TO HOLE IT FIRMLY IN PLACE.

11. ALL FLOOR DRAINS SHALL DISCHARGE TO THE SANITARY SEWER.

12. ALL SANITARY SEWER PIPES SHALL BE TESTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF WATER AND SEWER MAIN CONSTRUCTION IN INDIANA, AS A MINIMUM, AND WITH CITY OF CONNERSVILLE SANITARY CODE REQUIREMENTS, INCLUDING VISUAL, TELEVISED, INFILTRATION, EXFILTRATION, AIR TESTS, LEAKAGE TESTS AND DEFLECTION TESTS.

13. THE SEWER SHALL MEET THE REQUIREMENTS OF EXFILTRATION OR AIR UNDER PRESSURE AND TELEVISION INSPECTION. PVC SEWER PIPE MUST MEET 5% DEFLECTION TEST REQUIREMENTS/ ALL TEST MUST BE CONDUCTED IN THE PRESENCE OF AN EMPLOYEE OF THE CITY AND THE ENGINEER'S REPRESENTATIVES.

WATER SERVICES
ALL WATER SERVICE TAPS WILL REQUIRE A MINIMUM OF FORTY-EIGHT HOURS' NOTICE TO THE ENGINEER AND CITY. THE CITY SHALL BE PRESENT TO WITNESS THE SERVICE TAPS. THE MINIMUM DEPTH OF COVER FROM FINISHED GRADE TO THE TOP OF THE TUBING SHALL BE 4'-6".

CORPORATION VALVE - CORPORATION VALVES SHALL MEET THE REQUIREMENTS OF AWWA C800.
INLET CONNECTION: AWWA TAPER THREAD
OUTLET CONNECTION: COMPRESSION FITTING
1" DIAMETER: MUELLER GROUND KEY CORPORATION VALVE H-15008
1½" OR 2" DIAMETER: MUELLER ORICORP CORPORATION VALVE H-15013

CURB VALVE - CURB VALVES SHALL MEET THE REQUIREMENTS OF AWWA C800. QUARTER TURN CHECK MINNEAPOLIS TOP THREAD PATTERN
INLET CONNECTION: COMPRESSION FITTING
OUTLET CONNECTION: COMPRESSION FITTING
1" DIAMETER: MUELLER MARK II ORISEAL CURB VALVE H-15155
1½" OR 2" DIAMETER: MUELLER 300 BALL CURB VALVE B-25155

COPPER TUBING -TYPE K SOFT COPPER TUBING

CURB BOX - CURB BOXES TO BE EXTENSION TYPE.
MINIMUM ±6" OF ADJUSTMENT (72" LONG TO 60" LONG FOR 5'-6" COVER)
MINNEAPOLIS BASE THREAD PATTERN CAST IRON CONSTRUCTION WITH BRASS PENTAGON PLUG
1" DIAMETER: MUELLER EXT. TYPE WITH MINN. PATTERN BASE H-10300-99008
1½" OR 2" DIAMETER: MUELLER EXT. TYPE WITH MINN. PATTERN BASE H-10300-99002

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

ENGINEERING RESOURCE ASSOCIATES
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SHELBYVILLE RETAIL
1814 E STATE ROAD 44, SHELBYVILLE, IN
PROJECT# W23237

DESCRIPTION:	DATE
10-10-2023 REVISE PER CITY COMMENTS	9-14-2023

DATE : 9-14-2023
PROJECT # : W23237.00
DESIGNED BY : TBD
DRAWN BY : TBD
CHECKED BY : TBD

GENERAL NOTES

C-2.0
SHEET

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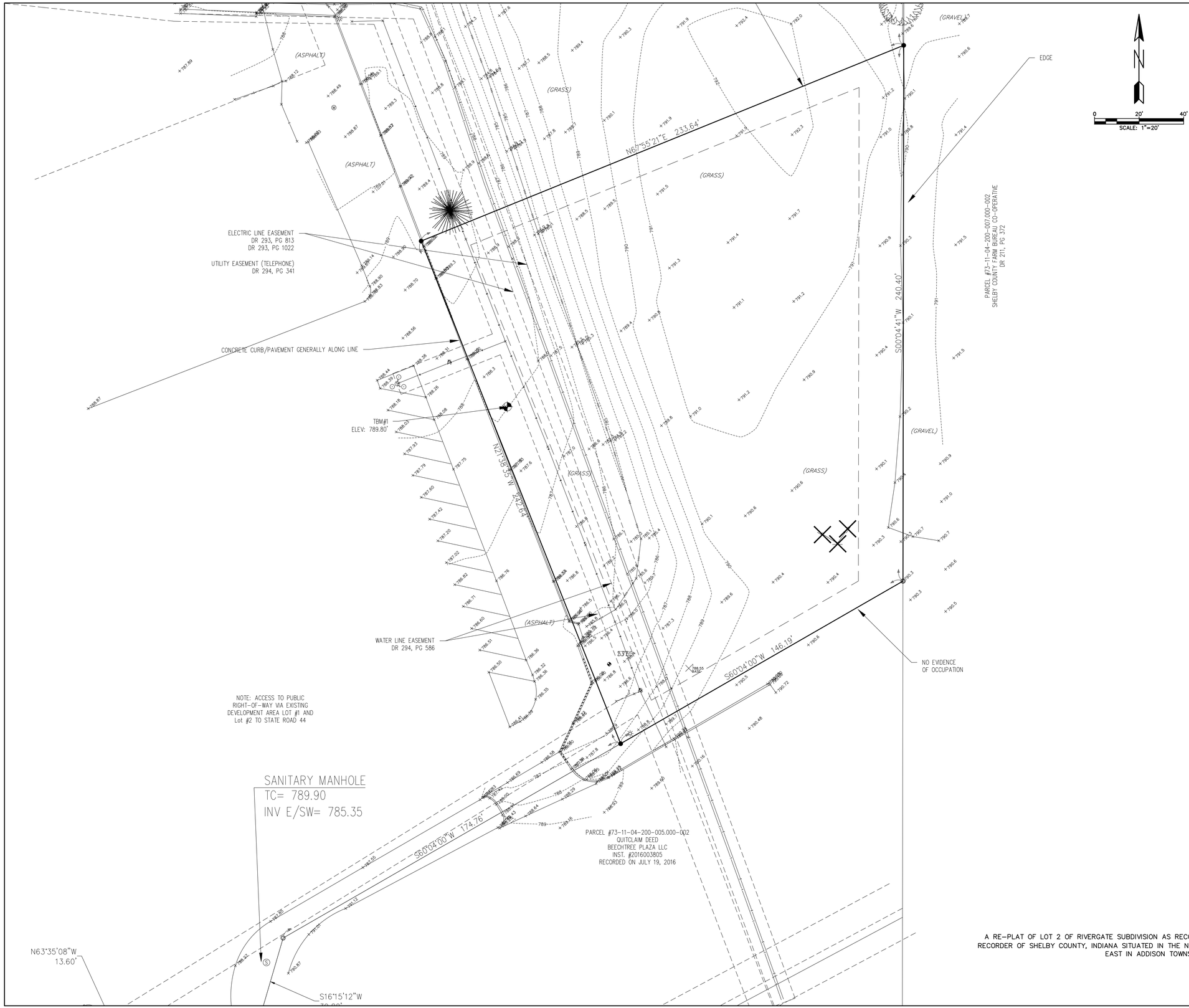

LEGEND

- MONUMENT – REBAR/PIPE (NO CAP)
- SITE – BOLLARD
- SITE – MISC. OBJECT (SEE LABEL)
- SITE – SIGN
- TREE – CONIFEROUS
- ELECTRIC (UNDERGROUND)
- TELEPHONE (UNDERGROUND)
- WATERLINE (UNDERGROUND)
- ELECTRIC TRANSFORMER
- FIBER OPTIC ACCESS/MANHOLE
- GAS VALVE
- LIGHT POLE/AREA LIGHT
- SANITARY MANHOLE
- STORM INLET – CURB/SQUARE
- WATER HYDRANT
- WATER VALVE

DEMOLITION LEGEND:

- AREA REMOVAL
- LINEAR REMOVAL
- REMOVAL ITEM

DEMOLITION NOTES:

1. TOPSOIL STRIPPING TO OCCUR PRIOR TO OTHER DEMOLITION ACTIVITIES, TOPSOIL NEEDED FOR FINAL LANDSCAPING SHALL BE STOCKPILED ON-SITE, ALL EXTRA TOPSOIL SHALL BE REMOVED BY THE CONTRACTOR.
2. EROSION CONTROL MEASURES (AS SHOWN ON THE EROSION CONTROL PLANS) WILL BE IN PLACE AND APPROVED BY THE ENGINEER PRIOR TO ANY BEGINNING OF CONSTRUCTION ACTIVITIES.
3. CONTRACTOR SHALL REMOVE EVERYTHING NECESSARY TO COMPLETE THE NEW SITE WORK. LABELS ARE FOR CONVENIENCE ONLY AND THE CONTRACTOR SHALL VERIFY REMOVALS PRIOR TO BIDDING THE PROJECT.
4. CONTRACTOR SHALL CAREFULLY MAINTAIN PRESENT GRADE AT BASE OF ALL EXISTING TREES TO REMAIN AND PREVENT ANY DISTURBANCE OR EXISTING TREES. CONTRACTOR TO PROTECT EXISTING TREES TO REMAIN IN PLACE AGAINST UNNECESSARY CUTTING, BREAKING OR BRANCHES OR EXCAVATION AND CONSTRUCTION MATERIALS WITHIN THE DRIP LINE.

A RE-PLAT OF LOT 2 OF RIVERGATE SUBDIVISION AS RECORDED IN INSTRUMENT NUMBER 2013001887 IN THE OFFICE OF THE RECORDER OF SHELBY COUNTY, INDIANA SITUATED IN THE NORTHEAST QUARTER OF SECTION 4, TOWNSHIP 12 NORTH, RANGE 7 EAST IN ADDISON TOWNSHIP, SHELBY COUNTY, INDIANA

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

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SHELBYVILLE RETAIL

1814 E STATE ROAD 44, SHELBYVILLE, IN
PROJECT# W23237

10-10-2023 REVISE PER CITY COMMENTS

DESCRIPTION:

DATE	: 9-14-2023
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EXISTING CONDITION AND DEMOLITION PLAN

C-3.0
SHEET

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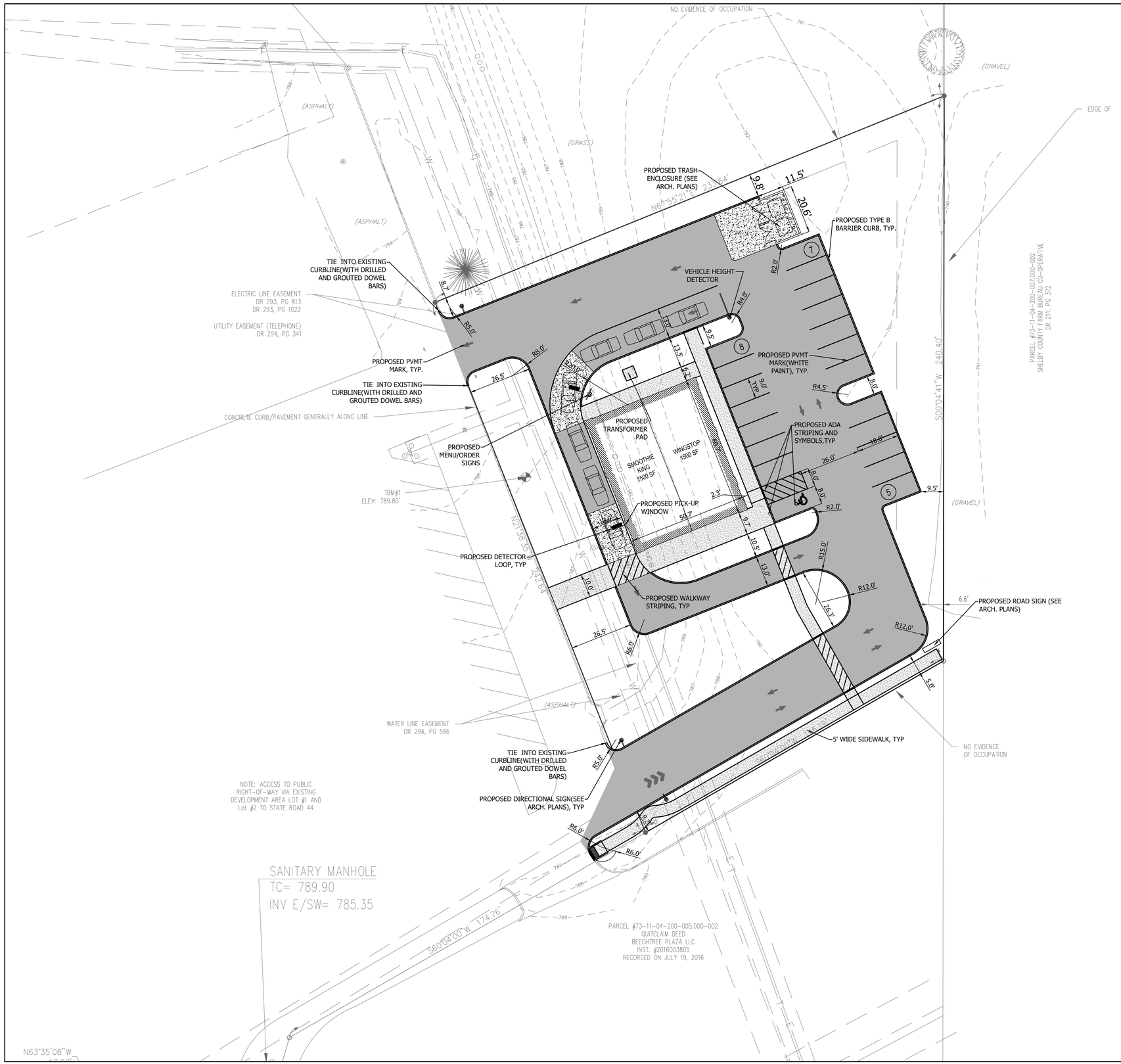

GEOMETRY NOTES:

1. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD. THE CONTRACTOR WILL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. COORDINATE WITH ARCHITECTURAL PLANS, GRADING PLANS, UTILITY PLANS,. & ALL CONSTRUCTION DETAILS.
3. ALL WORK AND OPERATIONS SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
4. LAYOUT OF ALL NEW PAVING SHALL BE SMOOTH AND CONTINUOUS, DEFLECTION IN ALIGNMENT OR ABRUPT CHANGES WILL NOT BE ACCEPTED. ENGINEER SHALL REVIEW STAKED LAYOUT AND FRAMEWORK PRIOR TO PAVING OPERATIONS.
5. THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES ON WHICH THE WORK IS BEING DONE CLEAR OF RUBBISH AND DEBRIS.
6. THE CONTRACTOR WILL NOT INTERFERE WITH USE OF ADJACENT BUILDINGS, PARKING LOTS, STREETS, OR ALLEYS WITHOUT PRIOR COORDINATION WITH THE OWNER OR THE CITY OF NORTH AURORA.
7. MEET THE LINE AND GRADE OF NEW PAVEMENT AND/OR LAWN AND PLANTING ARES WITH THE LINE AND GRADE OF THE EXISTING PAVEMENT AND/OR LAWN AND PLANTING ARES.
8. SEE CONSTRUCTION DETAILS FOR ALL CIVIL DETAILS.
9. SEE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION ON BUILDING.
10. ALL PAVEMENT MARKINGS TO BE WHITE PAINT(EXCEPT ADA. SEE ADA DETAILS)

GEOMETRY PLAN HATCHING LEGEND:

- BITUMINOUS PAVEMENT (SEE DETAIL)
- CONCRETE PAVEMENT (SEE DETAIL)
- CONCRETE SIDEWALK (SEE DETAIL)

SITE DATA:

TOTAL OWNERSHIP AREA: 1.00 ACRES (43,560 S.F.)

EXISTING IMPERVIOUS AREA: 0.00 ACRE (0 S.F.)

PROPOSED IMPERVIOUS AREA: 0.56 ACRES (24,725 S.F.)

NET IMPERVIOUS AREA INCREASE: 0.56 ACRES (24,725 S.F.)

PARKING COUNT: 20 PARKING STALLS
19 STANDARD STALLS
1 ADA STALLS

0 20' 40'
SCALE: 1"=20'

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

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GEOMETRY PLAN

C-4.0
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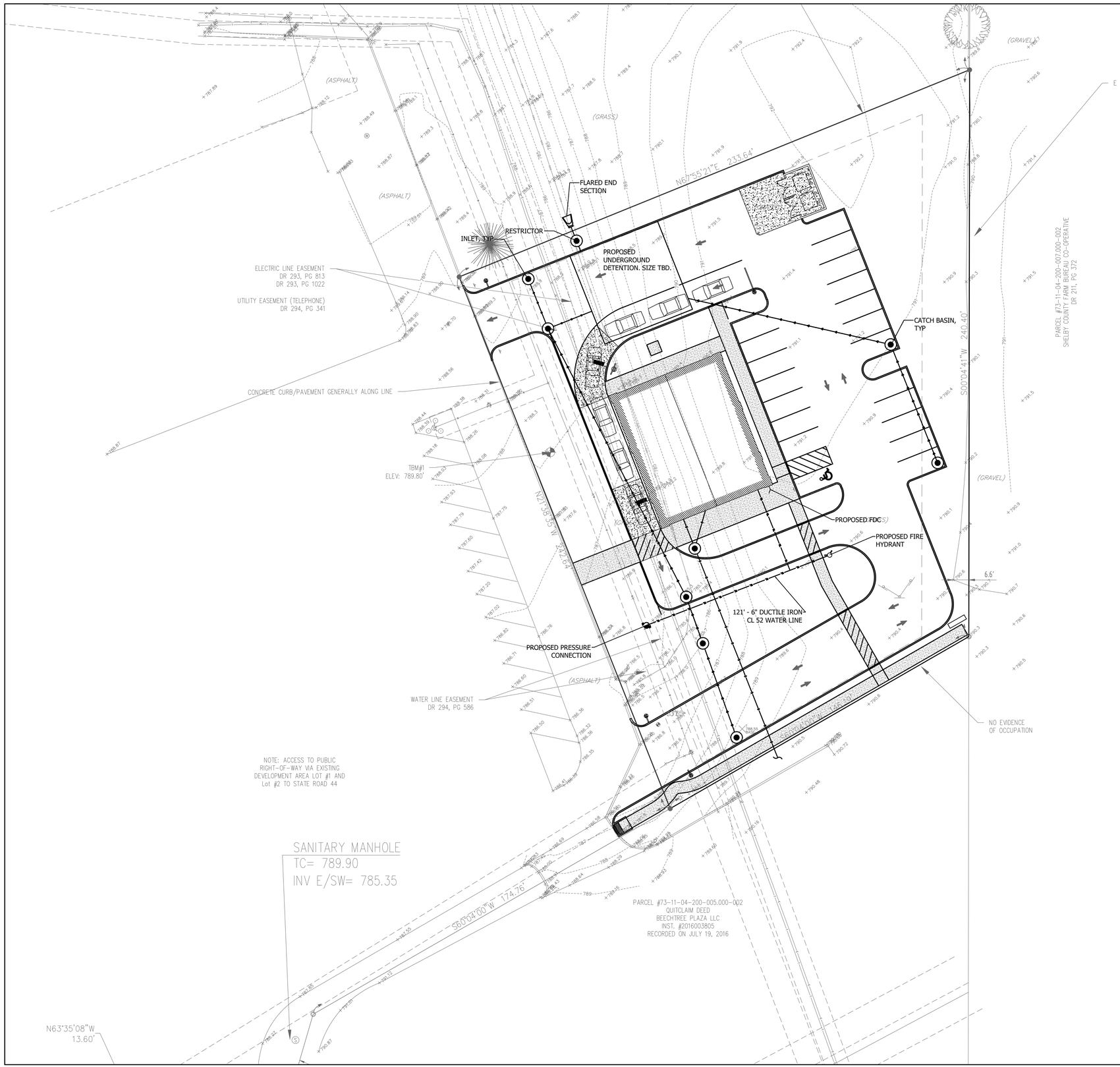

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UTILITY PLAN

C-5.0
SHEET

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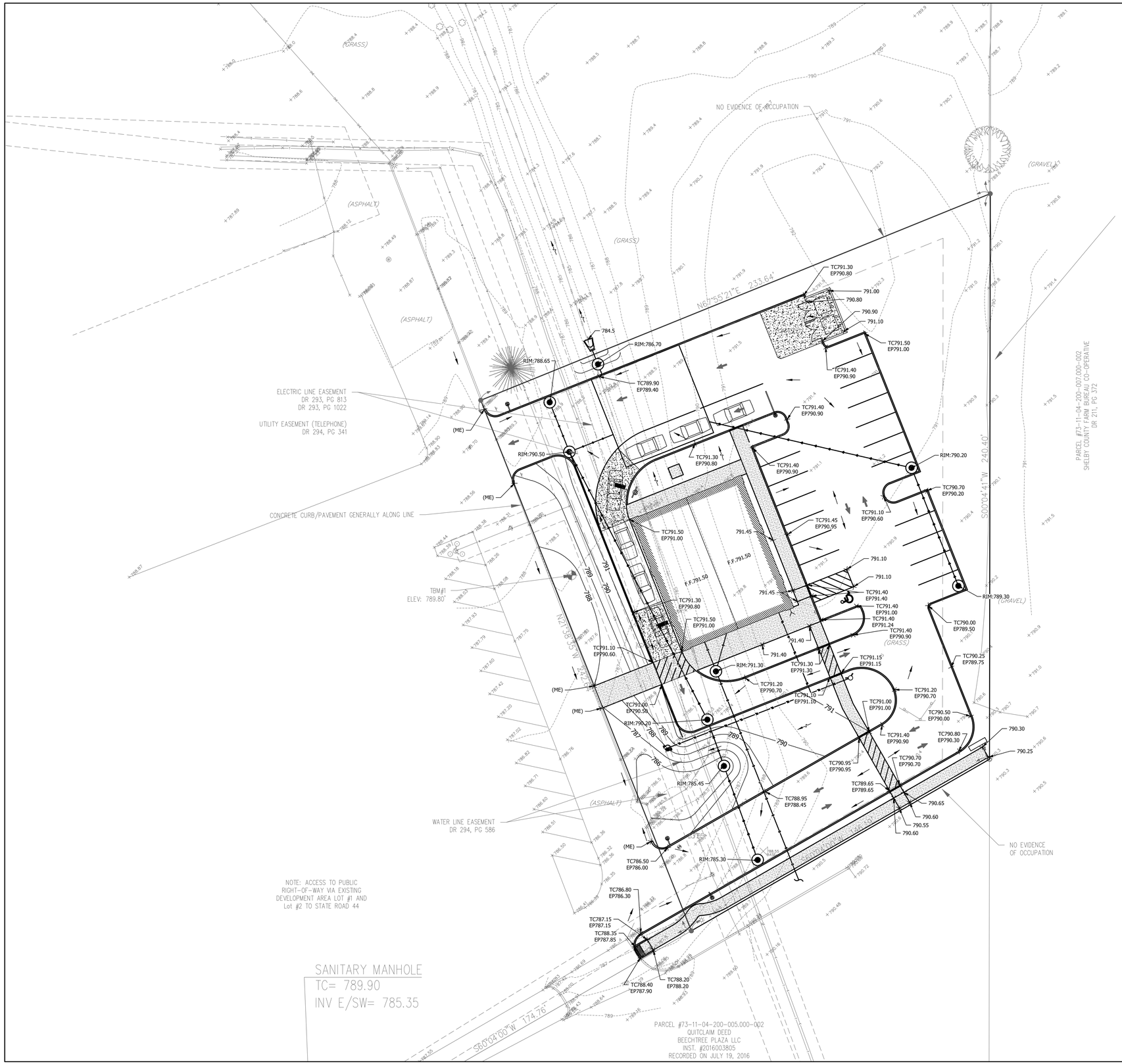

0 20' 40'
SCALE: 1"=20'

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

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CHECKED BY	: TBD

GRADING PLAN

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SHEET

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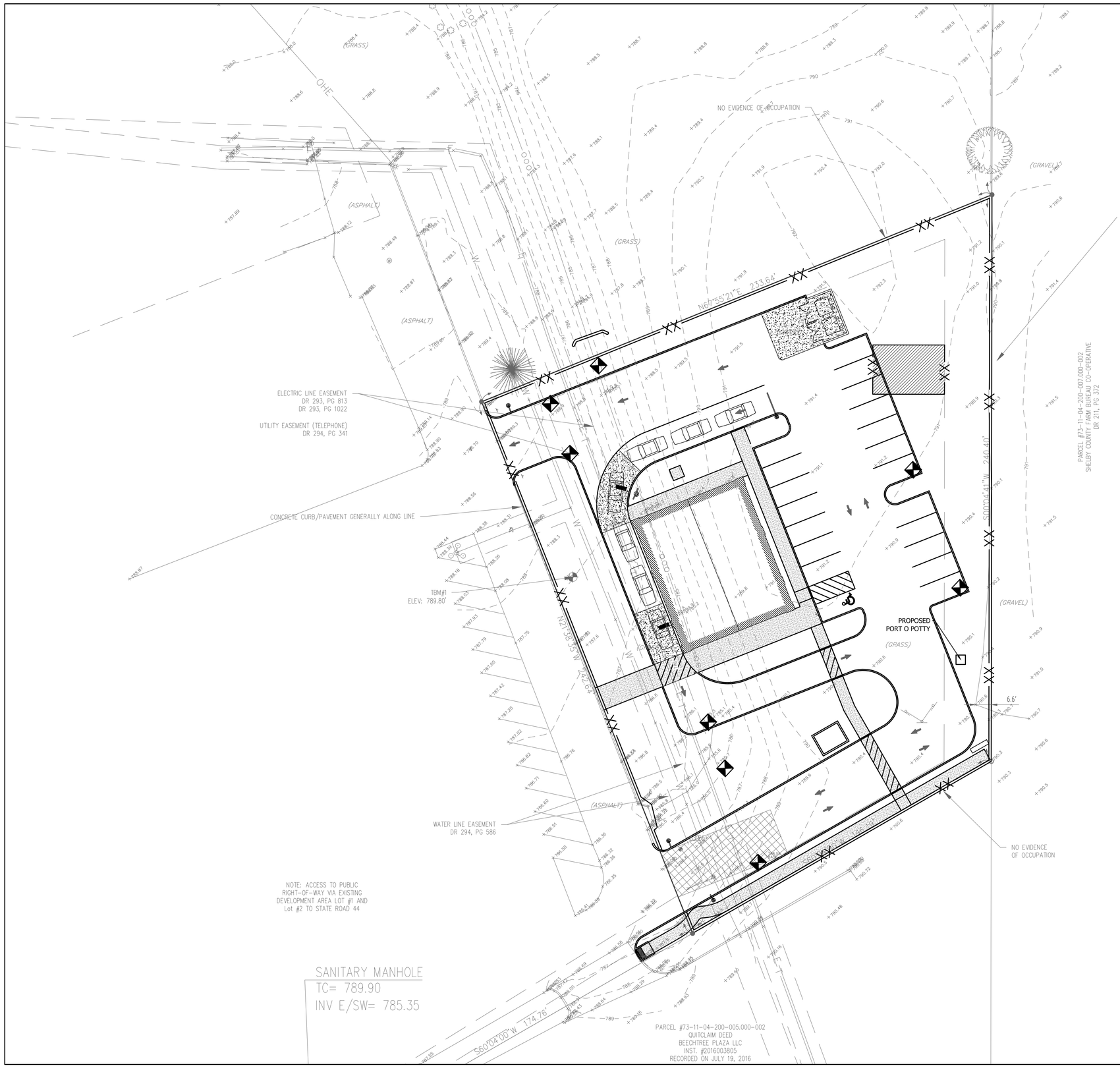

EROSION CONTROL LEGEND:

- INLET FILTER BASEKETS
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- MATERIAL STOCKPILE
- CONCRETE WASHOUT
- COIR LOG

NOTE:

1. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO DEMOLITION.
2. EROSION CONTROL MEASURES MUST BE PERIODICALLY INSPECTED AND REPAIRED/REPLACED AS NECESSARY.
3. TRACK OFF OF MATERIAL ON THE ROADWAY WILL NOT BE ACCEPTABLE. BEFORE THE END OF EACH WORKDAY THE ROADWAY SHALL BE INSPECTED AND CLEANED AS NECESSARY.
4. THE EXISTING CONCRETE APRONS SHALL BE UTILIZED AS STABILIZED CONSTRUCTION ENTRANCES.

N

0 20' 40'
SCALE: 1"=20'

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

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SOIL EROSION CONTROL PLAN

C-7.0
SHEET

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S T O R M W A T E R P O L L U T I O N P R E V E N T I O N P L A N

THE FOLLOWING PLAN IS ESTABLISHED AND INCORPORATED IN THE PROJECT TO DIRECT THE CONTRACTOR IN THE PLACEMENT OF TEMPORARY EROSION CONTROL SYSTEMS AND TO PROVIDE A STORM SEWER WATER POLLUTION PREVENTION PLAN FOR COMPLIANCE UNDER NPDES.

THE PURPOSE OF THIS PLAN IS TO MINIMIZE EROSION WITHIN THE CONSTRUCTION SITE AND TO LIMIT SEDIMENTS FROM LEAVING THE CONSTRUCTION SITE BY UTILIZING PROPER TEMPORARY EROSION CONTROL SYSTEMS AND PROVIDING GROUND COVER WITHIN A REASONABLE AMOUNT OF TIME.

CERTAIN EROSION CONTROL FACILITIES SHALL BE INSTALLED BY THE CONTRACTOR AT THE BEGINNING OF CONSTRUCTION. OTHER ITEMS SHALL BE INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER ON A CASE BY CASE SITUATION DEPENDING ON THE CONTRACTOR'S SEQUENCE OF ACTIVITIES, TIME OF YEAR, AND EXPECTED WEATHER CONDITION.

THE CONTRACTOR SHALL INSTALL PERMANENT EROSION CONTROL SYSTEMS AND SEEDING WITHIN A TIME FRAME SPECIFIED HEREIN AND AS DIRECTED BY THE ENGINEER, THEREFORE MINIMIZING THE AMOUNT OF AREA SUSCEPTIBLE TO EROSION AND REDUCING THE AMOUNT OF TEMPORARY SEEDING. THE ENGINEER WILL DETERMINE IF ANY TEMPORARY EROSION CONTROL SYSTEMS SHOWN IN THE PLAN CAN BE DELETED AND IF ANY ADDITIONAL TEMPORARY EROSION CONTROL SYSTEMS, WHICH ARE NOT INCLUDED IN THIS PLAN, SHALL BE ADDED. THE CONTRACTOR SHALL PERFORM ALL WORK AS DIRECTED BY THE ENGINEER AND AS SHOWN IN STANDARD 280001 OF THE PLANS. SECTION 280. TEMPORARY EROSION CONTROL, OF THE STANDARD SPECIFICATIONS ADDITIONALLY SUPPLEMENTS THIS PLAN.

SITE DESCRIPTION
DESCRIPTION OF CONSTRUCTION ACTIVITY
- THE PROJECT IS BOUNDED BY NORTH PROSPECT AVE ON THE WEST, RESIDENTIAL HOUSES ON THE NORTH, SALT CREEK GOLF CLUB ON THE EAST, AND IS NORTH OF THE INTERSECTION OF THORNDALE AVE AND N PROSPECT AVE. THE PROJECT IS LOCATED ENTIRELY WITHIN THE VILLAGE OF ITASCA IL, 60143.
- CONSTRUCTION INCLUDES EARTHWORK, A COMMERCIAL BUILDING, SIDEWALK, UTILITIES, AND A STORMWATER FACILITY.

DESCRIPTION OF INTENDED SEQUENCE FOR MAJOR CONSTRUCTION ACTIVITIES WHICH WILL DISTURB SOILS FOR MAJOR PORTION OF THE CONSTRUCTION SITE:
- EROSION CONTROL SILT FENCING SHALL BE IN PLACE PRIOR TO EARTHWORK ACTIVITIES.
- SITE SHALL BE FINE-GRADED, WITH ALL PROPOSED PAVING AREAS GRADED TO ROUGHLY 1-FOOT BELOW FINAL ELEVATION ON PLANS.
- THE COMMERCIAL BUILDING, UTILITIES, STORMWATER FACILITY, AND SIDEWALK SHALL BE CONSTRUCTED.
- DISTURBED AREAS SHALL BE TOPSOILED & SEEDED.

AREA OF CONSTRUCTION SITE:
THE TOTAL AREA OF THE CONSTRUCTION SITE IS ESTIMATED TO BE 1.02 ACRES BY WHICH 0.85 ACRES WILL BE DISTURBED BY EXCAVATION, GRADING, AND OTHER ACTIVITIES.

OTHER REPORTS, STUDIES AND PLANS, WHICH AID IN THE DEVELOPMENT OF THE STORM WATER POLLUTION PREVENTION PLAN AS REFERENCED DOCUMENTS:
- INFORMATION OF THE SOILS AND TERRAIN WITHIN THE SITE WAS OBTAINED FROM TOPOGRAPHIC SURVEYS AND SOIL BORINGS THAT WERE UTILITIES FOR THE DEVELOPMENT OF THE PROPOSED TEMPORARY EROSION CONTROL SYSTEMS.
- PROJECT PLAN DOCUMENTS, SPECIFICATIONS AND SPECIAL PROVISIONS, AND PLAN DRAWINGS INDICATING DRAINAGE PATTERNS AND APPROXIMATE SLOPES ANTICIPATED AFTER GRADING ACTIVITIES WERE UTILIZED FOR THE PROPOSED PLACEMENT OF THE TEMPORARY EROSION CONTROL SYSTEMS.

DRAINAGE TRIBUTARIES AND SENSITIVE AREAS RECEIVING RUNOFF FROM THIS CONSTRUCTION SITE:
THE SITE SHALL DRAIN INTO THE PROPOSED STORMWATER DETENTION PONDS BY MEANS OF AN EXISTING STORM SEWER SYSTEM.

CONTROLS, EROSION CONTROLS AND SEDIMENT CONTROL:
- THE DRAWINGS, SPECIFICATIONS AND SPECIAL PROVISIONS WILL ENSURE THAT EXISTING VEGETATION IS PRESERVED WHERE ATTAINABLE AND DISTURBED PORTIONS OF THE SITE WILL BE STABILIZED. STABILIZATION PRACTICES INCLUDE TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, PROTECTION OF TREES, PRESERVATION OF NATURE VEGETATION, AND OTHER APPROPRIATE MEASURES AS DIRECTED BY THE ENGINEER. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
  - (a.) AREAS OF EXISTING VEGETATION, WOOD AND GRASSLANDS, OUTSIDE THE PROPOSED CONSTRUCTION LIMITS SHALL BE IDENTIFIED BY THE ENGINEER FOR PRESERVING AND SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES.
  - (b.) DEAD, DISEASED, OR UNSUITABLE VEGETATION WITHIN THE SITE SHALL BE REMOVED AS DIRECTED BY THE ENGINEER, ALONG WITH REQUIRED TREE REMOVAL.
  - (c.) AS SOON AS REASONABLE ACCESS IS AVAILABLE TO ALL LOCATIONS WHERE WATER DRAINS AWAY FROM THE PROJECT, TEMPORARY PERIMETER EROSION BARRIER SHALL BE INSTALLED AS CALLED OUT IN THIS PLAN AND DIRECTED BY THE ENGINEER.
  - (d.) BARE AND SPARSELY VEGETATED GROUND IN HIGH ERODIBLE AREAS AS DETERMINED BY THE ENGINEER SHALL BE TEMPORARILY SEEDED AT THE BEGINNING OF CONSTRUCTION WHERE NO CONSTRUCTION ACTIVITIES ARE EXPECTED WITHIN SEVEN (7) DAYS.
  - (e.) IMMEDIATELY AFTER TREE REMOVAL IS COMPLETED, AREAS WHICH ARE HIGHLY ERODIBLE AS DETERMINED BY THE ENGINEER, SHALL BE TEMPORARILY SEEDED WHEN NO CONSTRUCTION ACTIVITIES ARE EXPECTED WITHIN SEVEN (7) DAYS.

- ESTABLISHMENT OF THESE TEMPORARY EROSION CONTROL MEASURES WILL HAVE ADDITIONAL BENEFITS TO THE PROJECT. DESIRABLE GRASS SEED WILL BECOME ESTABLISHED IN THESE AREAS AND WILL SPREAD SEEDS ONTO THE CONSTRUCTION SITE UNTIL PERMANENT SEEDING/MOWING AND OVER SEEDING CAN BE COMPLETED.
- THE SOIL AND WATER CONSERVATION DISTRICT IS RESPONSIBLE FOR CONDUCTING SITE VISITS AND VERIFYING THAT THE PRACTICES ARE WORKING PROPERLY AND DETERMINE IF ADDITIONAL PRACTICES ARE NEEDED FOR BETTER SOIL EROSION AND SEDIMENT CONTROL. IF ADDITIONAL PRACTICES ARE DEEMED NECESSARY BY THE SWCD THE CONTRACTOR WILL IMPLEMENT THE PRACTICE IN A TIMELY MANNER.

THIS PLAN HAS BEEN PREPARED TO COMPLY WITH THE PROVISIONS OF THE NPDES PERMIT ISSUED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FOR STORM WATER DISCHARGES FROM CONSTRUCTION SITE ACTIVITIES.

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

_____ _____ _____
ENGINEER: JOHN MAYER, PE DATE

DESCRIPTION OF STABILIZATION PRACTICES DURING CONSTRUCTION:

- DURING CONSTRUCTION, AREAS OUTSIDE THE CONSTRUCTION LIMITS AS OUTLINED PREVIOUSLY HEREIN SHALL BE PROTECTED. THE CONTRACTOR SHALL NOT USE THIS AREA FOR STAGING, PARKING OF VEHICLES OF CONSTRUCTION EQUIPMENT, STORAGE OF MATERIALS OR OTHER CONSTRUCTION RELATED ACTIVITIES.
  - (a.) WITHIN THE CONSTRUCTION LIMITS, AREAS WHICH MAY BE SUSCEPTIBLE TO EROSION AS DETERMINED BY THE ENGINEER SHALL REMAIN UNDISTURBED UNTIL FULL SCALE CONSTRUCTION IS UNDERWAY TO PREVENT UNNECESSARY SOIL EROSION.
  - (b.) AS CONSTRUCTION PROCEEDS, THE CONTRACTOR SHALL INSTITUTE THE FOLLOWING AS DIRECTED BY THE ENGINEER
    - (i.) PLACE TEMPORARY EROSION CONTROL FACILITIES AT LOCATIONS SHOWN ON THE PLANS.
    - (ii.) TEMPORARILY SEED ERODIBLE BARE EARTH ON A WEEKLY BASIS TO MINIMIZE THE AMOUNT OF ERODIBLE SURFACE AREA WITHIN THE CONTRACT LIMITS.
    - (iii.) PROVIDE TEMPORARY EROSION CONTROL SYSTEMS.
    - (iv.) CONTINUE BUILDING UP THE EMBANKMENT TO THE PROPOSED GRADE WHILE, AT THE SAME TIME, PLACING PERMANENT EROSION CONTROL FINAL SHAPING TO THE SLOPES.
  - (c.) EXCAVATED AREAS AND EMBANKMENT SHALL BE PERMANENTLY SEEDED IMMEDIATELY AFTER FINAL GRADING. IF NOT, THEY SHALL BE TEMPORARILY SEEDED IF NO CONSTRUCTION ACTIVITY IN THE AREA IS PLANNED FOR SEVEN (7) DAYS.
  - (d.) CONSTRUCTION EQUIPMENT SHALL BE STORED AND FUELED ONLY AT DESIGNATED LOCATIONS. ALL NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR OTHER POLLUTANT IN ACCORDANCE WITH EPA WATER QUALITY REGULATIONS. LEAKING EQUIPMENT OR SUPPLIES SHALL BE IMMEDIATELY REPAIRED OR REMOVED FROM THE SITE.
  - (e.) THE RESIDENT ENGINEER SHALL INSPECT THE PROJECT DAILY DURING CONSTRUCTION ACTIVITIES. INSPECTION SHALL ALSO BE DONE WEEKLY AND AFTER RAINS OF 1/2-INCH OR GREATER OR EQUIVALENT SNOWFALL AND DURING THE WINTER SHUTDOWN PERIOD. THE PROJECT SHALL ADDITIONALLY BE INSPECTED BY THE CONSTRUCTION FIELD ENGINEER ON A BIWEEKLY BASIS TO DETERMINE THAT EROSION CONTROL EFFORTS ARE IN PLACE AND EFFECTIVE AND IF OTHER EROSION CONTROL WORK IS NECESSARY.
  - (f.) SEDIMENT COLLECTED DURING CONSTRUCTION OF THE VARIOUS TEMPORARY EROSION CONTROL SYSTEMS SHALL BE DISPOSED OF ON THE SITE ON A REGULAR BASIS AS DIRECTED BY THE ENGINEER. THE COST OF THIS MAINTENANCE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR EARTH EXCAVATION FOR EROSION CONTROL.
  - (g.) THE TEMPORARY EROSION CONTROL SYSTEMS SHALL BE REMOVED, AS DIRECTED BY THE ENGINEER, AFTER USE IS NO LONGER NEEDED OR NO LONGER FUNCTIONING.

DESCRIPTION OF STRUCTURAL PRACTICES AFTER FINAL GRADING:
- TEMPORARY EROSION CONTROL SYSTEMS SHALL BE LEFT IN PLACE WITH PROPER MAINTENANCE UNTIL PERMANENT EROSION CONTROL IS IN PLACE AND WORKING PROPERLY AND ALL PROPOSED TURF AREAS SODDED AND ESTABLISHED.
- ONCE PERMANENT EROSION CONTROL SYSTEMS AS PROPOSED IN THE PLANS ARE FUNCTIONAL AND ESTABLISHED, TEMPORARY ITEMS SHALL BE REMOVED, CLEANED UP, AND DISTURBED TURF RESEEDED.

MAINTENANCE AFTER CONSTRUCTION:
CONSTRUCTION IS COMPLETE AFTER ACCEPTANCE BY THE MUNICIPALITY. MAINTENANCE UP TO THIS DATE WILL BE BY THE CONTRACTOR.

MISCELLANEOUS:
- TEMPORARY EROSION CONTROL SEEDING SHALL BE APPLIED AT A RATE OF 100 LBS/ACRES, IF DIRECTED.
- SEDIMENT COLLECTED DURING CONSTRUCTION BY THE VARIOUS TEMPORARY EROSION CONTROL SYSTEMS SHALL BE DISPOSED OF ON THE SITE ON A REGULAR BASIS, AS DIRECTED BY THE ENGINEER. THE COST OF THIS MAINTENANCE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR EARTH EXCAVATION.
- ALL EROSION CONTROL PRODUCTS FURNISHED SHALL BE SPECIFICALLY RECOMMENDED BY THE MANUFACTURER FOR THE USE SPECIFIED IN THE EROSION CONTROL PLAN. PRIOR TO THE APPROVAL AND USE OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A NOTARIZED CERTIFICATION BY THE PRODUCER STATING THE INTENDED USE OF THE PRODUCT AND THAT THE PHYSICAL PROPERTIES REQUIRED FOR THIS APPLICATION ARE MET OR EXCEEDED. THE CONTRACTOR SHALL PROVIDE MANUFACTURER INSTALLATION PROCEDURES TO FACILITATE THE ENGINEER IN CONSTRUCTION INSPECTION.

SOIL EROSION CONTROL:
1. SOIL EROSION CONTROL MUST CONFORM TO THE VILLAGE ORDINANCE.

A. SPECIFICATIONS:
1. A CONSTRUCTION ENTRANCE TO THE SITE SHALL BE INSTALLED AND STABILIZED PRIOR TO ANY WORK ON THE SITE. THE CONSTRUCTION ENTRANCE SHALL CONSIST OF 12" OF CRUSHED CONCRETE, 50 FEET IN LENGTH AND 24 FEET WIDE, AS SHOWN ON PLANS.
2. ALL STOCK PILES ON THE SITE WHICH WILL NOT BE REDISTRIBUTED FOR A WEEK OR LONGER WILL BE SEEDED WITHIN SEVEN DAYS OF THE FORMATION OF THE STOCKPILE.
3. SEEDING IN DISTRIBUTED AREAS OUTSIDE OF THE RIGHT-OF-WAYS WILL BE DONE WITH PERENNIAL RYE GRASS, 1/2 LB. PER 1,000 SF, IF IT IS LATER IN THE FALL AND A MORE RAPID GERMINATION IS REQUIRED, 1 LB OF OATS PER 1,000 S.F. CAN BE ADDED TO THE RYE GRASS.
4. THE SEEDING AND MULCH WILL BE MAINTAINED AND REPAIRED WHEN NECESSARY UNTIL THE PROJECT IS COMPLETED.
5. AGGREGATE BASE SHALL BE INSTALLED AS SOON AS POSSIBLE IN THE CONSTRUCTION SEQUENCE FOR ROADS TO PROVIDE REQUIRED STABILIZATION.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF EROSION CONTROL STRUCTURES.
7. CONTRACTOR SHALL INSPECT EROSION CONTROL STRUCTURES WEEKLY OR AFTER ANY MAJOR STORMS OR AS DIRECTED BY THE VILLAGE.
8. ALL DESIGN AND CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AS CONTAINED IN 327 IAC 2.
9. DUST CONTROL AND CLEANING OF ROADWAYS AS REQUESTED BY THE VILLAGE SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.

B. INSTALLATION
1. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
2. NOTIFY PUBLIC WORKS DEPARTMENT AND THE VILLAGE ENGINEERING DEPARTMENT 24 HOURS PRIOR TO INITIATING CONSTRUCTION.

DRAINAGE STATEMENT

WE HEREBY STATE THAT TO THE BEST OF OUR KNOWLEDGE AND BELIEF THE DRAINAGE OF SURFACE WATERS OF THIS PLAT WILL NOT BE CHANGED BY THE CONSTRUCTION OF THE IMPROVEMENTS OF THIS SUBDIVISION OR ANY PART THEREOF OR THAT IF SUCH SURFACE WATER DRAINAGE WILL BE CHANGED, REASONABLE PROVISIONS HAVE BEEN MADE FOR COLLECTION AND DIVERSION OF SUCH SURFACE WATERS INTO PUBLIC AREAS, OR DRAINS WHICH THE SUBDIVIDER HAS A RIGHT TO USE, AND THAT SUCH SURFACE WATERS WILL BE PLANNED FOR IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES SO AS TO REDUCE THE LIKELIHOOD OF DAMAGE TO THE ADJOINING PROPERTY BECAUSE OF THE CONSTRUCTION OF THE SUBDIVISION.

DATE: _____
NAME OF ENGINEER
INDIANA REGISTERED PROF.ENG.NO._____

OWNER AND SUBDIVIDER:
NAME OF DEVELOPER/OWNER
TITLE: _____
CORPORATION: _____

SOIL PROTECTION CHART

STABLIZATION TYPE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PERMANENT SEEDING			A			*	*					
DORMANT SEEDING	B										B	
TEMPORARY SEEDING			C			*	D*					
SODDING			E**									
MULCHING	F											

A. KENTUCKY BLUEGRASS 90 LBS/AC MIXED WITH PERENNIAL RYEGRASS 30 LBS/AC
B. KENTUCKY BLUEGRASS 135 LBS/AC MIXED WITH PERENNIAL RYEGRASS 45 LBS/AC + 2 TONS STRAW MULCH/AC
C. SPRING OATS 100 LBS/AC
D. WHEAT OR CEREAL RYE 150 LBS/AC
E. SOD
F. STRAW MULCH 2 TONS/AC

* IRRIGATION NEEDED DURING JUNE AND JULY
** IRRIGATION NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD

OWNER'S CERTIFICATION

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I AM AWARE THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

OWNER
_____ _____ _____
SIGNATURE TITLE DATE
COMPANY

CONTRACTOR'S CERTIFICATION

"I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT (ILR 10) THAT AUTHORIZES THE STORMWATER DISCHARGES ASSOCIATED WITH ACTIVITY FROM THE CONSTRUCTION SITE IDENTIFIED AS PART OF THIS CERTIFICATION.

GENERAL CONTRACTOR
_____ _____ _____
SIGNATURE TITLE DATE
COMPANY

John Mayer
IN. P.E. NO. 10708044
Expires JULY 31, 2024

PROFESSIONAL DESIGN FIRM NUMBER: 184.001186

ENGINEERING RESOURCE ASSOCIATES
3501 WEST AVENUE, SUITE 150
WARRENVILLE, ILLINOIS 60555
PHONE (630) 393-2090
FAX (630) 393-2152
www.eraconsultants.com

KOLBROOK DESIGN INC.
828 DAVIS STREET, SUITE 300
EVANSTON, IL 60201
(847) 492-1991

SHELBYVILLE RETAIL
1814 E STATE ROAD 44, SHELBYVILLE, IN
PROJECT # W23237

10-10-2023 REVISE PER CITY COMMENTS

DATE	9-14-2023
PROJECT #	W23237.00
DESIGNED BY	TBD
DRAWN BY	TBD
CHECKED BY	TBD

SOIL EROSION CONTROL NOTES

C-7.1
SHEET

G:\PROJECTS\KolbrookDesignInc\W23237.00 1814 E State Road 44, Shelbyville, IN\CADD\Sheet\W23237.00 Sheet 7.0 Soil Erosion Control Plan.dwg

SHELBYVILLE, INDIANA

SHELBYVILLE CONSTRUCTION STANDARDS

DIRECTIONS FOR USE

1.) *The Entire Set Of Signed Standards Shall Be Attached To The Site Development Plans And Construction Drawings And Shall Be Considered Part Thereto.*

2.) *Details Prepared By Outside Sources Shall Not Be Included In The Construction Drawings When Said Details Cover Work Which Is Covered By Shelbyville Standards.*

3.) *Individual Shelbyville Standards That Do Not Apply May Be Crossed-out By Design Engineer Through The Placement Of A Single Large 'X' Over Detail. Minor Reference Notations May Be Placed Adjacent To Individual Standard Drawings For Coordination. However, The Standards Themselves Shall Not Be Modified In Any Way.*

4.) *Details Prepared By Outside Sources Covering Work Which Is Not Covered By Shelbyville Standards Are The Sole Responsibility Of The Design Engineer And Shall Be Placed On Sheets Other Than The Shelbyville Standards Sheets.*

5.) *For Details, Specifications, And Design Guidelines Not Covered In These Standards, Refer To The Documents Stated Below. In The Event That These Standards Are Used, Referenced, Or Incorporated Into Any Publicly Or Privately Funded Project And A Conflicting Standard(s) And/Or Specifications(s) Exist, The Following Order Shall Govern:*
   - *5.1 Shelbyville Construction Standards*
   - *5.2 City Of Shelbyville Unified Development Ordinance*
   - *5.3 City Of Shelbyville Stormwater Design Manual*
   - *5.4 INDOT Standards And Specifications / Indiana Manual On Uniform Traffic Control Devices / INDOT Work Zone Safety Manual.*
   - *5.5 "Ten State Standards" Prepared By Great Lakes-Upper Mississippi River Board Of State Public Health And Environmental Managers And Sanitary Engineers*
   - *5.6 ASTM And/Or AWWA Standards And Specifications*
   - *5.7 Project's Written Specifications*
   - *5.8 Project's Plans*

6.) *Design Professional Certifying The Plans For The Project Acknowledges Their Professional Responsibility For Ensuring That All Work Is Correct, Accurate, And Complies With All Applicable Laws, Standards, Regulations, And Ordinances. If Such An Error And/Or Omission Is Found, The Design Professional Accepts Full Responsibility And Shall Determine A Solution That Complies With All Applicable Laws, Standards, Regulations, And Ordinances. If Such An Error Or Omission Is Found,The Developer Is Not Relieved To Comply With All Applicable Laws, Standards, Regulations, And Ordinances.*

7.) *All Requests For Interpretations And/Or Clarification With The Standards Shall Be Done In Writing To The City Engineer. All Official Responses By The City Engineer Will Be Done In Writing.*

8.) *Failure To Properly Execute The Above Directions For Use Will Not Effect The Applicability Nor The Enforcement Of The Individual Shelbyville Standards.*

9.) *The City Of Shelbyville Shall Be Contacted When Required By Calling (317) 392-5102.*

INDEX	
Sheet #	**DESCRIPTION**
1	DIRECTIONS FOR USE, GENERAL NOTES, AND REVISION LOG
2	RIGHT-OF-WAY
3	RIGHT-OF-WAY, SITE DEVELOPMENT STANDARDS
4	PAVEMENT DETAILS AND NOTES
5	CURB AND DRIVEWAY DETAILS AND NOTES
6	SIDEWALK AND ADA RAMPS DETAILS AND NOTES
7	TRENCH BACKFILL AND STREET CUT DETAILS AND NOTES
8	STORM SEWER BEDDING AND PIPE DETAILS AND NOTES
9	STORM SEWER AND DRAINAGE DETAILS AND NOTES
10	STORM SEWER STRUCTURES DETAILS AND NOTES
11	SANITARY SEWER BEDDING AND PIPE DETAILS AND NOTES
12	SANITARY SEWER DETAILS AND NOTES
13	SANITARY SEWER DETAILS AND NOTES
14	SANITARY SEWER LIFT STATION STANDARDS AND GUIDELINES
15	FIRE DEPT. & WATER STANDARD DETAILS
16	SIGNS, MARKINGS, & MONUMENTATION DETAILS
17	ARTERIAL/COLLECTOR ROUNDABOUT STANDARDS AND DETAILS
18	LOCAL ROUNDABOUT STANDARDS AND DETAILS

Shelbyville Construction Standards Apply To Public & Private Property

BOARD OF PUBLIC WORKS AND SAFETY

APPROVED Tom DeBaun — Mayor — 05/11/2021 Date

APPROVED David Finkel — Member — 05/11/2021 Date

APPROVED Bob Williams — Member — 05/11/2021 Date

GENERAL NOTES

1.) *Contractor Shall Verify The Exact Location Of All Existing Utilities At Least 48 Hours Prior To Any Construction Or Excavation. During Construction, All Utilities Shall Be Adequately Supported To Minimize Damage. The Contractor Shall Be Responsible For Repairing Or Replacing Damaged Utilities To The Satisfaction Of The City Of Shelbyville And The Owner Of The Affected Utility. All Utility Main Lines And All Utility Service Lines/Laterals Are Included In The Definition Of All Utilities.*

2.) *Contractor Shall Obtain A R/W Permit From The Engineering Dept. Prior To Starting Any Work Within City R/W. R/W Permits Require A Minimum 2 Working Days For Internal Review Prior To Approval. A $10K Maintenance & Performance Bond Shall Be Posted With R/W Permit Application. The City Reserves The Right To Require A Larger Maintenance & Performance Bond Based On Project Scope If Deemed Necessary By The City. Failure To Obtain The Proper Permits As Required May Result In Penalties As Provided In City Ordinance 10.99.*

3.) *Project Plans Shall Be Provided For Review By The Technical Review Committee (TRC). Any Project With Public Works Infrastructure Improvements Shall Commence With Construction No Later Than 2 Years From TRC Approval, Or Shall Be Subject To A Subsequent TRC Approval.*

4.) *The Contractor Shall Notify The City And All Other Applicable Governmental Agencies At Least 48 Hours Prior To Starting Or Resuming Work On A Project. If Work Involves A Lane Closure, The Contractor Must Notify The Street Department At Least 72 Hours In Advance.*

5.) *The Contractor Is Responsible For Maintaing A Safe Construction Site And For Keeping Surrounding And Adjacent Streets Neat And Clean. The Contractor Shall Provide All Traffic Control, In Accordance With Most Recent Version Of The INDOT Workzone Safety Manual, Required On Public Ways Near The Project.*

6.) *All Erosion Control / Stormwater Pollution Prevention Measures Shall Meet Or Exceed The Requirements Set Forth In The Indiana Storm Water Quality Manual. Contractor Is Responsible For Maintaining Such Measures In Compliance With All Applicable IDEM, DNR, And City Of Shelbyville MS4 Standards And Regulations.*

7.) *All Street Cuts Shall Be Square And Neat. Jagged Or Irregular Street Cuts Are Not Permitted And Shall Be Repaired By The Contractor At No Cost To The City.*

8.) *Installation Of, Or Provisions For The Installation Of All Underground Utilities (Including Service Laterals) To Be Placed Under Pavement Areas Shall Be Established Prior To The Construction Of The Pavements. The City Reserves The Right To Require Trenchless Construction For Crossing Of Existing Streets. No Open Cut Construction Of New Pavement, Curb, Or Sidewalk Will Be Allowed.*

9.) *All Benchmarks And Elevations Shall Be Based On The City/County G.I.S. Datum.*

10.) *Whenever Proprietary Equipment Is Specified, All Proposals for Substitution Shall Be Submitted In Writing To The Shelbyville Engineering Department For Review.*

11.) *As-Built Record Drawings Shall Be Submitted To The Shelbyville Plan Commission Office. Two Full Hard-Copy Sets, One Full-Size PDF Set, And One Electronic AutoCAD Set Shall Be Submitted To The Shelbyville Plan Commision Office. Electronic AutoCAD Drawings Shall Be Compliant With The State Plane Coordinate System With Units Provided In U.S. Survey Feet. All Benchmarks And Elevations Shall Be Based On The City/County G.I.S. Datum. As-Built Drawings Shall Be Certified By A Registered Land Surveyor Or Engineer. As-Builts Are Required For Sanitary Sewer Systems, Storm Sewers Systems, Water Systems, Conduits, Lights, Roadways, And All Other Infrastructure Within Public Right-Of-Ways And/Or Easements.*

12.) *All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).*

REVISIONS		
Rev. No.	**Description**	**Date**
1	Entire Set	07/26/2011
2	ADA Compliance Notes, References To New UDO	01/14/2014
3	Updated Entire Set	02/11/2020
4	Sanitary Dedicated Easement, H.P. Storm Pipe	05/11/2021

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

CITY OF SHELBYVILLE

DIRECTIONS FOR USE, GENERAL NOTES, & REVISION LOG

SHEET 1 OF 18

GENERAL NOTES

1.) The Right-Of-Way Widths, Pavement Widths, And Easement Widths Indicated On This Sheet Are Minimum Distances Required By The City Of Shelbyville. Greater Widths May Be Provided Or Required. Additional Right-Of-Way Width May Be Required By The City In The Proximity of Intersections With Thoroughfare Or Arterial Roads. The City Of Shelbyville Unified Development Ordinance, Section 6.19, Provides For The Specific Details For Right-Of-Way, Pavement, and Sidewalk Widths. The Contractor Shall Review The Plat And The Plans To Confirm The Various Widths Indicated On This Sheet And Shall Report Any Discrepancy To The City Engineer Prior To Proceeding With Construction.

2.) Local Street Pavement Width (Excluding Curb & Gutter) May Be Required To Be Wider Than Specified When Directed By The Shelbyville Plan Commission And / Or City Engineer. Additional Width Requirement Will Be Considered When Dwelling Density Exceeds 4 Lots Per Acre.

3.) Dimensions Shown On The Street Cross Section Details On This Sheet Are For Two-Lane Streets With No Parking. See Note (2) In Table 1 For Street And Right-Of-Way Widths For Streets With Parking.

4.) If The Width Of A New Sidewalk Is Different Than The Width Of A Connecting Existing Sidewalk, A 5 Ft Sidewalk Taper Or Flare Section Shall Be Constructed To Transition To Existing Sidewalks Having A Different Width.

5.) All Permits And Easements Shall Be Obtained By The Owner With Any Required Insurance Or Bonds To Be Provided By The Owner Or Contractor Prior To The Start Of Work On The Project.

6.) Minimum Profile Grade On Streets Shall Be 0.60%. Minimum Length Of Vertical Curves Shall Be 25 Feet. Vertical And Horizontal Design Of Streets Shall Comply With Street Alignment Design Tables As Shown On This Sheet.

7.) "Ten State Standards" Shall Be Followed, Including 18" Minimum Vertical Separation And 10'-0" Minimum Horizontal Separation Shall Be Maintained Between Watermains, Hydrants, And All Sewers (Storm and Sanitary).

8.) Standard Pavement Markings Shall Be Placed In Streets / Roads As Shown In Accordance With The Most Recent Version Of The Indiana Manual On Uniform Traffic Control Devices (MUTCD). For Asphalt Pavements, All Pavement Markings Shall Be Thermoplastic. For Concrete Pavements, All Pavement Markings Shall Be Epoxy Or Pre-Formed Plastic.

9.) Top Of Manhole Frames Shall Be Set To Meet The Finished Yard Or Sidewalk Grade When Located In Front Yard Area Of Lot Or Right-Of-Way.

10.) Snowplowable Raised Pavement Markers (RPMs) Shall Be Placed On All Arterial Roads, In Accordance With The Most Recent Version Of The Indiana Manual On Uniform Traffic Control Devices (MUTCD). Blue RPMs Shall Be Used When Adjacent To A Fire Hydrant.

11.) Arterial Streets And All Divided Streets Shall Be Coordinated With The City Engineer And Plan Commissioner And Shall Be In Accordance With The Minimum Design Standards Outlined By The Unified Development Ordinance.

12.) Residential Streets Are Defined As Streets Serving Only Residential Properties. Non-Residential Streets Are Defined As Streets Serving Non-Residential Properties Or Any Combination of Residential And Non-Residential Properties.

13.) Street Classifications Shall Be Confirmed With The City Plan Commission Office.

14.) Refer To The Shelbyville Unified Development Ordinance Section 6.17 For Cul-De-Sac Design Standards.

15.) For Construction In Already Developed Areas, Some Of The Required Road Widths, Planting Strip Widths, And Other Items May Be Reduced With Permission From The City Engineer And/Or Plan Commissioner.

16.) Contractors And Developers Shall Refer To The City's Bicycle And Pedestrian Master Plan For New Construction. Projects May Be Required To Install A Wider Asphalt Path In Lieu of Concrete, Which May Affect R/W Widths.

17.) Street Trees Shall Be Required On All New Streets Unless Deemed Infeasible By The City Engineer. Trees Shall Be Planted Every 40' On-Center, In The 'Planting Strip" On Both Sides Of The Road, And Shall Be A Species Identified In Unified Development Ordinance 6.21. Existing Streets That Are Reconstructed Shall Have At Least Six New Trees Placed Per Block

18.) Street Lights Shall Be Required On All New And Majorly Reconstructed Streets Per The Unified Development Ordinance. The Spacing And Coverage Shall Be Designed By Lighting Professionals And Approved By The Planning Director.

TABLE 1: STREET DESIGN STANDARDS

		Local Street - Residential			Local Street - Non-Residential			Collector Street - Residential			Collector Street - Non-Residential			Arterial Street	Rural Collector Street
		No Parking	Parking On 1 Side (12)	Parking On 2 Sides (12)	No Parking	Parking On 1 Side (12)	Parking On 2 Sides (12)	No Parking	Parking On 1 Side (12)	Parking On 2 Sides (12)	No Parking	Parking On 1 Side (12)	Parking On 2 Sides (12)	No Parking	To Be Determined By The City Based On Traffic Volume and Design Speed
(1)	Right-Of-Way Width	50	56	66	52	62	70	50	60	70	54	64	72	70	
(2)	Pavement Width	22	31	40	24	34	44	24	34	44	26	36	46	36/48	
(3)	Curb Requirement (Type)	I/II	I/II	I/II	II	II	II	II	II	II	II	II	II	II	
(4)	Grade (Min. - Max.)	0.6% - 7%	0.6% - 7%	0.6% - 7%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%
(5)	Minimum Tangent Distance	(10) 100	(10) 100	(10) 100	(10) 150	(10) 150	(10) 150	(10) 200	(10) 200	(10) 200	(10) 250	(10) 250	(10) 250	(10) 300	(10) 300
(6)	Minimum Corner Radius	(10) 25	(10) 25	(10) 25	(10) 30	(10) 30	(10) 30	(10) 35	(10) 35	(10) 35	(10) 45	(10) 45	(10) 45	(10) 50	(10) 50
(7)	See Also Note #4 (Single Family 4"-0" Width), (Multi-Family 5'-0" Width), (Commercial 6'-0" Width), (Industrial 4'-0" Width).														
(8)	Care Should Be Taken To NOT Disturb Lot Corner Pins When Constructing Sidewalks.														
(9)	2 Lane Arterial Street Standards Shown - All Other Arterial Street Designs Shall Be Consistent With The Requirements Of The City Engineer And INDOT.														
(10)	Subject To Additional Requirements And Any Alternate Standards Established By The City Engineer And/Or INDOT, Based On Design Speed.														
(11)	Pavement / Sidewalk Separation May Be Reduced To 4 Feet In Commercial Areas Where Parking Is Provided On Both Sides Of The Street.														
(12)	Street Widths Are Based On Parallel Parking Only. Other Parking Configurations Must Be Approved By The City Engineer And Plan Commission Office.														

TABLE 2: ROADWAY GEOMETRIC DESIGN TABLE

DESIGN SPEED (MPH)	MINIMUM HORIZONTAL CURVE RADIUS (ft)[1]	CREST K VALUE (Minimum)[2]	SAG K VALUE (Minimum)[3]	Max. Permitted Grade Change Without Vertical Curve[4]
20	100	12	17	2.00%
25	250	19	26	1.85%
30	400	29	37	1.30%
35	600	44	49	0.95%
40	800	61	64	0.75%
45	1000	84	79	0.55%
50	1200	114	96	0.45%

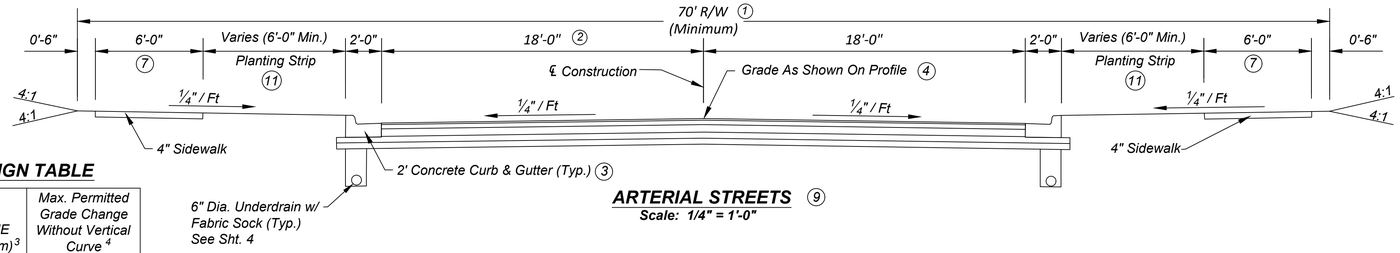
NOTES:

1.) City Engineer And/Or Plan Commissioner May Require A Longer Curve Radius

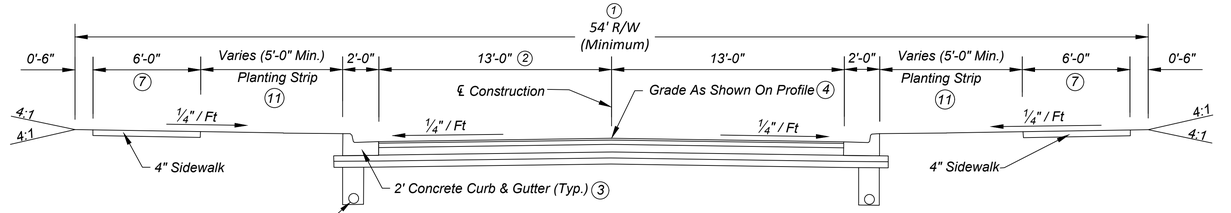
2.) If Curbs Are Present, And K>150, Proper Pavement Drainage Should Be Ensured Near The High Point Of The Curve.

3.) If Curbs Are Present, And K>150, Proper Pavement Drainage Should Be Ensured Near The Low Point Of The Curve.

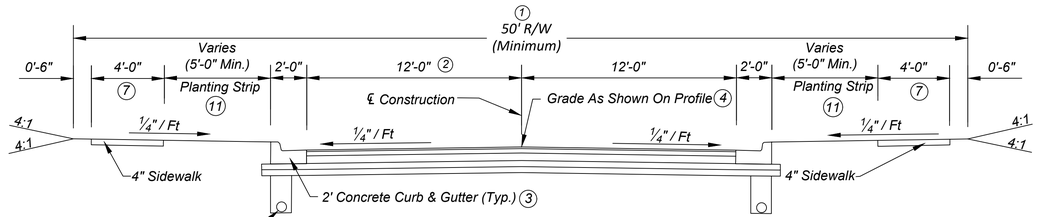
4.) Applies to Local Streets Only. Minimum Required Distance Between Consecutive Deflections Is 100 ft.



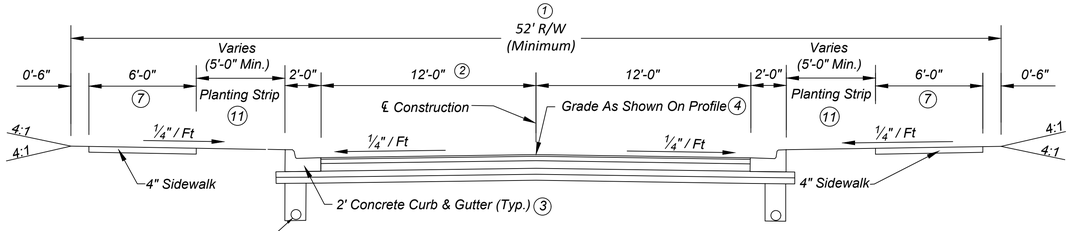
ARTERIAL STREETS (9)
Scale: 1/4" = 1'-0"



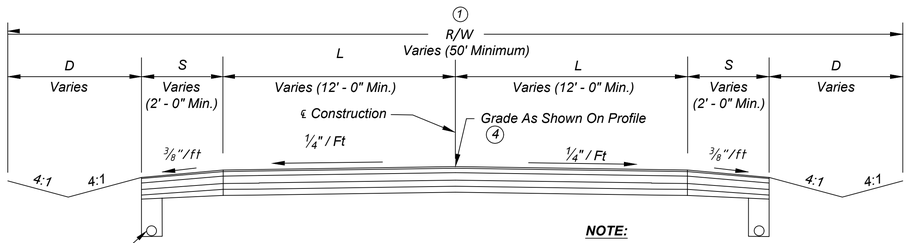
NON RESIDENTIAL COLLECTOR STREETS
Scale: 1/4" = 1'-0"



RESIDENTIAL COLLECTOR STREETS
Scale: 1/4" = 1'-0"



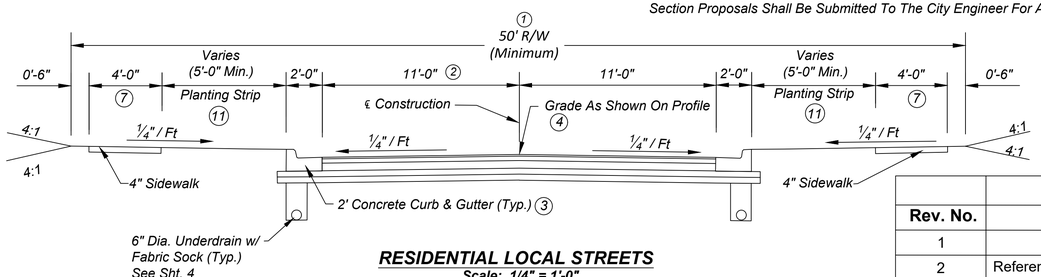
NON-RESIDENTIAL LOCAL STREETS
Scale: 1/4" = 1'-0"



RURAL STREETS
Scale: 1/4" = 1'-0"

NOTE:

Dimensions For Rural Street Sections Shall Be Site-Specific Based Upon Street Classification, Design Speed, Utility Requirements, Drainage Requirements, And Clear Zone Requirements. At A Minimum, Rural Lane, Shoulder, And Ditch/Clear Zone Dimensions Shall Meet The Criteria Set Forth In The Most Recent Version Of The INDOT Design Manual. All Rural Street Section Proposals Shall Be Submitted To The City Engineer For Approval Prior To Design.



RESIDENTIAL LOCAL STREETS
Scale: 1/4" = 1'-0"

REVISIONS		
Rev. No.	**Description**	**Date**
1	Entire Set	07/26/2011
2	References To New UDO, Added Rural Section, Revised Design Tables	01/10/2014
3	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

RIGHT-OF-WAY

SHEET 2 OF 18

GENERAL DEVELOPMENT NOTES

1.) Both The Subdivision Developer And The Individual Lot Builder Are Responsible To Construct New Residential Lots In Accordance With The Details Established In The City Of Shelbyville Construction Standard Details, Latest Revision.

2.) An Erosion Control Plan Shall Be Submitted To The City Of Shelbyville. Such Plan Shall Require That A Minimum Of 4 Inches Topsoil Shall Be Placed And Graded Prior To Final Permanent Seeding.

3.) This Sheet Is NOT All Inclusive For The Unified Development Ordinance Regulations. All New Developments Shall Comply With The City of Shelbyville Unified Development Ordinance.

4.) Monuments Shall Be Placed For The Purpose Of Accurately Denoting The Center Of Each Roadway. At A Minimum, Monuments Shall Be Placed At Points Of Tangency, Points Of Curvature, And Roadway Intersections.

5.) The External Boundary Of The Development / Subdivision Shall Be Monumented As Denoted On The Final Plat. Monuments Shall Be Placed At All Corner And Deflection Points Of The External Boundary. Two Markers Shall Be Placed At The Points Of Tangency At A Rounded Boundary Corner Or Arc.

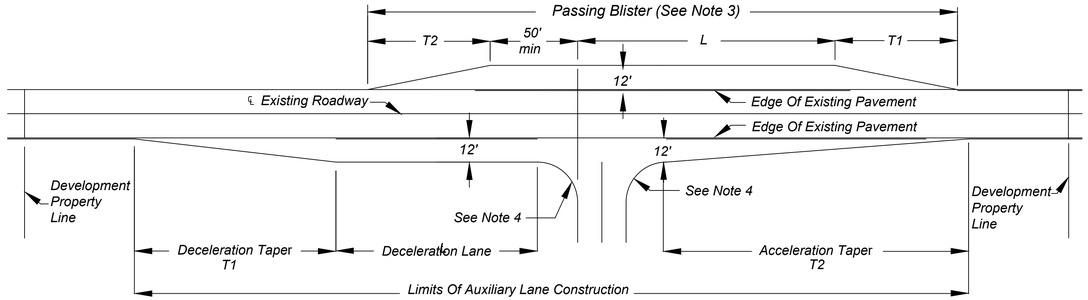
6.) Each Individual Lot Corner And Internal Angle Point Shall Be Monumented. Two Markers Shall Be Placed At The Points Of Tangency At A Rounded Lot Corner Or Arc.

7.) All External Boundary And Individual Lot Monuments Shall Be Installed Before Acceptance Of Final Plat, Unless Otherwise Approved by Planning Department. All Roadway Monuments Shall Be Installed Within Six (6) Months Of Placement Of Pavement Surface. All Monumentation Shall Be In Place Prior To The Acceptance Of The Public Improvements By The Board Of Public Works And Safety.

8.) A Land Surveyor, Registered In The State Of Indiana, Shall Attest To The Accuracy Of The Installed Monuments. Attestment Certifying All Monumentation Has Been Placed Shall Be Delivered As Soon As All Monumentation Has Been Placed. Attestment Must Be Received Prior To Release Of Surety / Bond. Certified Statements Of Attestment Shall Be Submitted To The Shelbyville Plan Commission.

9.) All Monuments Shall Be Constructed In Accordance With The Monument Details Shown On This Sheet.

10.) Monuments Which Are Damaged, Buried, Or Altered Shall Be Reset By Party Responsible For Damage/Alteration.



ENTRANCE NOTES:

1.) Acceleration / Deceleration Lanes Shall Be Constructed For All New Development Entrances Which Connect To An Arterial Or Collector Roadway. Passing Blister(s) May Also Be Required By The City. The City Reserves The Right To Require A Traffic Study To Determine Traffic Impacts And Any Additional Roadway Improvements Necessary To Mitigate Adverse Impacts.

2.) The City Reserves The Right To Require Lane Widening, Surface Milling, Resurfacing, New Roadway Markings, And/Or Any Additional Improvements Deemed Necessary By The City On Existing Roads Adjacent To New Site Or Subdivision Entrances.

3.) The City May Require A Passing Blister At The Intersection Of A Site Or Subdivision Entrance. Passing Blisters Shall Be Designed In Accordance With The Most Recent Version Of The INDOT Design Manual.

4.) Minimum Corner Radius Shall Be In Accordance With Table 1, Item (6) On Sheet 2.

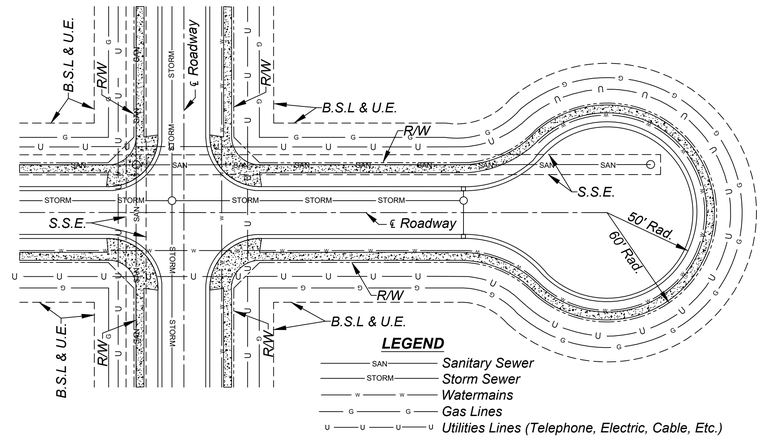
5.) All Above Surface Utilities, Structures, Plantings, Or Other Conflicts Within 12 Feet Of Roadway Improvements, Including Accel/Decel Lanes And Passing Blisters, Shall Be Removed Or Relocated Prior To Construction Of Roadway Improvements.

6.) Construction Plans Shall Include Centerline Profile And Cross Sections Of Existing Road Being Intersected By The Entrance.

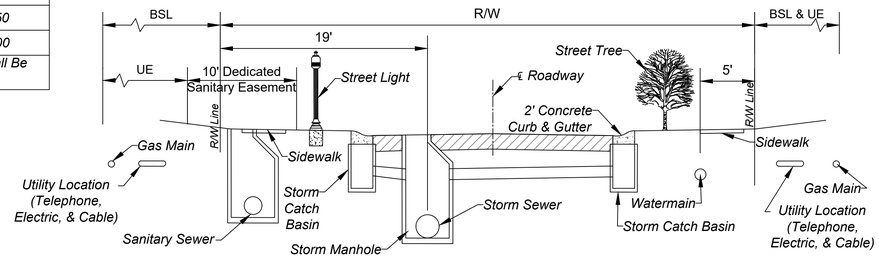
MINIMUM SITE / SUBDIVISION ENTRANCE STANDARD
Scale: None

TABLE 6: MINIMUM AUXILIARY LANE DIMENSIONS

DESIGN SPEED (mph)	T1 (ft)	L (ft)	T2 (ft)
30 or Less	100	100	100
35	150	150	100
40	150	200	150
45	200	250	200
Greater Than 45	Refer To INDOT Standards. Shall Be Based On Design Speed.		



TYPICAL UTILITY LOCATION PLAN
Scale: None



TYPICAL UTILITY LOCATION SECTION
Scale: None

UTILITY NOTES

1.) Utility Layout Within The Right-Of-Way And Utility Easements Shall Be As Shown In The Typical Details On This Sheet. The Location Of Proposed Utilities Are So Indicated To Ensure The Orderly Development Of The Land. Requests To Change The Location of The Proposed Utilities Shall Be Submitted In Writing To The City Engineer And Planning Commissioner. Utilities Not Meeting These Requirements Shall Be Removed And Replaced As Directed By The City Engineer And / Or Planning Commissioner At No Expense To The City.

2.) All Utility Street Cuts And Trenches Shall Be In Accordance With The City Standard Details Shown On Sheet 7.

3.) All Newly Installed Utilities Shall Be Placed Underground Except For Drops Or Laterals That Serve An Individual Structure Or Service.

4.) Telephone/Fiber, Electric, And Cable Shall Be Placed In Joint Trench. If Joint Trench Is Not Possible, Approval For Alternate Placement Must Be Granted By The City Engineer And Plan Commissioner In Writing.

5.) Abandoned Utility Infrastructure Shall Be Completely Removed After Activating Newly Constructed, Upgraded, Or Relocated Facilities. Underground Pipes/Conduits Shall Be Capped And Filled With Flowable Fill If Not Removed. Trenches Shall Be Properly Backfilled As Noted In The City Standards.

6.) Storm Sewers, Fiber, Telephone, Cable, And/Or Electric May Alternatively Be Placed In Public Easements Outside Of The Right-Of-Way To Facilitate Site Drainage And Overall Utility Layout. Utilities Other Than Storm Sewers Shall Not Be Placed In Drainage Swales.

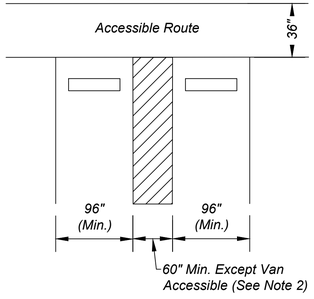
7.) The Sanitary Sewer Shall Have A 10' Dedicated Easement, Centered On The Sanitary Sewer. Sanitary Structures Shall Be Placed A Maximum 10 Feet From The Back of Curb And The Top Of Manhole Casting Shall Match The Sidewalk Elevation.

8.) All Concrete, Asphalt, And Aggregate Materials Shall Be Produced And/Or Supplied From An INDOT Approved Source And Meet INDOT Specifications. Variance From INDOT Specifications May Only Be Done So When Directed By The City Engineer.

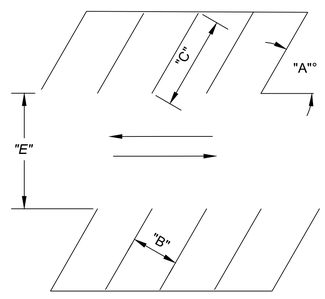
9.) Street Lights And Street Trees Shown Herein Are Conceptual Only And Based Upon The City Of Shelbyville Unified Development Ordinance. Street Lights and Street Trees Shall Be Located To Avoid Conflicts With All Utilities. Potential Damage To Utilities, Sidewalks, Curbs, Or Other Infrastructure Shall Be Considered When Selecting Street Tree Species. The City Reserves The Right To Remove Any Street Tree Or Street Light Placed Within The Right-Of-Way That Is Deemed By The City To Pose A Threat To Any Infrastructure Or Utility. The City Of Shelbyville Shall Not Be Liable For Replacement Of Or Compensation For Any Street Light Or Street Tree That Is Removed From The Right-Of-Way, Whether Or Not Such Street Light Or Street Tree Is In Compliance With The Unified Development Ordinance.

10.) City Is Not Responsible For Maintaining, Repairing, Or Replacing Non-Public Infrastructure Within Right-Of-Way. Non-Public Infrastructure Includes, But Is Not Limited To, The Following: Landscaping, Irrigation Systems, Pet Containment Systems, And/Or Fences.

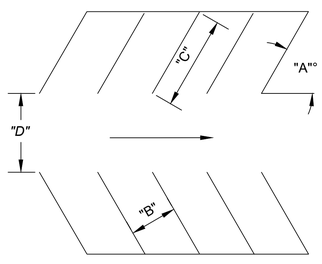
11.) Any Work Within The Rights-Of-Way Or Public Easements Shall Obtain The Appropriate Permits From The Engineering Department. Failure To Obtain The Proper Permits As Required May Result In Penalties As Provided In City Ordinance 10.99. See General Note #2 on Sheet 1.



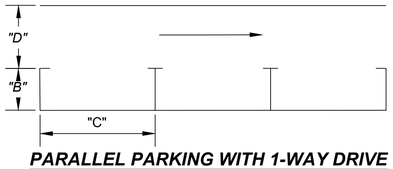
ACCESSIBLE PARKING SPACE
Scale: None



ANGLED PARKING WITH 2-WAY DRIVE
Scale: None



ANGLED PARKING WITH 1-WAY DRIVE
Scale: None



PARALLEL PARKING WITH 1-WAY DRIVE
Scale: None

TABLE 7: MINIMUM PARKING STANDARD DIMENSIONS

ANGLE OF PARKING "A"	STALL WIDTH "B"	STALL LENGTH "C"	DRIVE WIDTH ONE-WAY "D"	DRIVE WIDTH TWO-WAY "E"
61° - 90°	9'	18'	18'	26'
46° - 60°	9'	23.6'	15'	24'
1° - 45°	9'	27.6'	12'	22'
PARALLEL	9'	22'	12'	22'

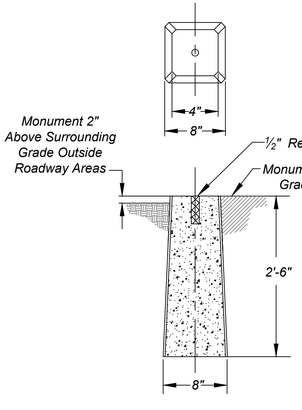
PARKING STANDARDS:

1.) For Purposes Of Measurements, Drives With Parking On One Side Only Shall Be Considered As One-Way Drives.

2.) Dimensions Shown For Parking Spaces Are Minimums.

3.) Pavement Sections For Parking Areas Shall Comply With The Standard Parking Lot Criteria Shown On Sheet 4 Of These Standards. Pavement Sections Shall Be Selected Based Upon Design Traffic Loading. A Modified Pavement Section May Be Required If Deemed Necessary By The City Engineer.

4.) Parking Shall Comply With City's Unified Development Ordinance.



MONUMENT DETAIL
Scale: None

NOTES:

1.) All External Boundary Monuments And Roadway Centerline Monuments Shall Be Concrete Monuments As Shown.

2.) All Individual Lot Corner Monuments Shall Be ¾" Rebar, 30 Inches Long.

3.) In Accordance With Indiana Code, All Monuments Shall Be Capped With A Substantial, Durable Plastic Or Metal Cap Permanently Affixed Showing The Registered Land Surveyor's Identification Information.

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	References To New UDO, Added Monument Detail	01/10/2014
3	Updated Entire Set	02/11/2020
4	Note On Sanitary Dedicated Easement	05/11/2021

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF INDIANA PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

RIGHT-OF-WAY, SITE DEVELOPMENT STANDARDS

PAVEMENT CONSTRUCTION

GENERAL NOTES

1.) The Pavement Construction Details Shown On This Sheet Are Minimum Standards Required By the City of Shelbyville. The City Engineer Or Street Commissioner May Require A Modified Pavement Design Based On Site Conditions Or Traffic Volumes. Geotchnical Testing Shall Be Required For Arterials And Non-Residential Collectors.

2.) The Roadway Pavement Cross Section Shall Be Completed Within 60 Calendar Days From The Start Of The Subgrade Treatment. For Flexible Pavements, The Surface Asphalt Course May Be Placed More Than 60 Calendar Days After Subgrade Treatment, But Shall Be Placed Within Two Calendar Years Of Placement Of Asphalt Intermediate Course, Except When Approved Otherwise By The City Engineer And/Or Street Commissioner. Surface Asphalt Installed After Any Delay Shall Have Tack Coat Placed Prior To Installation.

3.) All Concrete, Asphalt, And Aggregate Materials Shall Be Produced And/Or Supplied From An INDOT Approved Source And Meet INDOT Specifications. Variance From INDOT Specifications May Only Be Done So When Directed By The City Engineer.

4.) Pervious Pavements May Be Used In Parking Lots, Private Driveways, Private Local Streets, And Other Areas Not To Be Dedicated For City Rights-Of-Way Or Easements. Pervious Pavements Shall Be Designed And Constructed In Accordance With Current Industry Standards. Owner(s) Shall Be Responsible For All Maintenance Of Pervious Pavements.

SUBBASE AND SUBGRADE REQUIREMENTS

5.) Subbase And Subgrade Shall Be Compacted To At Least 100 Percent Of The Maximum Dry Density, At Optimum Moisture Content In Accordance With A.A.S.H.T.O. T99 To A Minimum Depth Of 16 Inches For All Local Streets And 24 Inches For All Collector And Arterial Streets. Compaction Tests Shall Be At The Contractor's Expense And Shall Be Performed By An Independent Laboratory. Test Results Shall Be Submitted To The Shelbyville City Engineer And Street Commissioner Prior To Placing Any Material On The Subbase Subgrade. One In-Place Density Test Shall Be Completed For Each Lift For Every 400 Linear Feet Of Traffic Lanes. One Lift Of Structural Fill Shall Not Be More Than 6 Inches In Thickness. At The Discretion Of The City Engineer Or The Street Commissioner, The Compaction Testing May Be Waived And The Adequacy Of Subbase And Subgrade Shall Be Determined Solely By Either The Shelbyville City Engineer Or Street Commissioner Based On A Contractor Performed Proof-Roll With A Fully Loaded Tri-Axle Dump Truck. The Type Of Compacted Crushed Aggregate Base Or Subbase Shall Be In Accordance With The Most Recent INDOT Standard Specifications For Aggregates (Section 904). Coarse Aggregate Shall Not Be Placed On Frozen Subbase Or Subgrade.

6.) Proof Roll Tests Shall Be Passed Prior To Placement Of Underdrains And First Lift Of Roadway Base Material. Proof Roll Tests Shall Not Be Conducted On Frozen Subgrade. The Temperature For The Previous 72 Hours Prior To The Proof Roll Test Shall Be Above 32°F. Subgrade Shall Be Free From Excess Moisture. If It Rains After A Proof Roll, The Contractor Is Required To Perform Another Proof Roll.

7.) Areas In Which Failures Occur During Proof Roll Test Are To Be Marked In The Field By The City Of Shelbyville. Failures Shall Be Corrected And Retested Until Passing Inspection.

8.) The City Engineer And/Or Street Commissioner May Require Additional Measures If Subgrade Or Subbase Is Determined To Be Inadequate. Contractor Shall Take Measures To Ensure Adequate Subgrade And Subbase As Directed By The City Engineer And/Or Street Commissioner. Additional Measures May Include, But Are Not Limited To, One Or More Of The Following:
   a. Chemical Modification Of Subgrade Soils
   b. Excavation Of Unsuitable Material
   c. Placement Of Tensar TX160 Geogrid
   d. Additional Compaction
   e. Increase In Depth Of Aggregate Base
   f. Modification Of Pavement Section

9.) If Deemed Necessary By The City Engineer And/Or Street Commissioner, Chemical Modification Of The Subgrade Soils Shall Be Performed In Accordance With INDOT Standard Specifications Section 215, Most Recent Version. The Depth Of Chemical Modification Shall Be To Minimum Depth Of 14 Inches. Following Soil Modification, Compaction Shall Be Performed Until The Modified Layer Has A Density Not Less Than 100% Of The Maximum Dry Density, Or The Zone Below The Modified Layer Has A Density Not Less Than 95% Of The Maximum Dry Density, At Optimum Moisture Content. Maximum Dry Densities Shall Be Determined In Accordance With A.A.S.H.T.O. T99. The Mix Design Shall Be Determined In Accordance With INDOT Design Procedures For Soil Modification Or Stabilization. The Proposed Design And Construction Procedure For Modification Or Stabilization Shall Be Submitted To The City Engineer And Street Commissioner For Approval. If The City Engineer And/Or Street Commissioner Determine That The Soil Modification Is Unsatisfactory, Contractor Shall Take Additional Measures At The Direction Of The City Engineer And/Or Street Commissioner As Stated In Note 6 On This Sheet.

10.) Compaction And Testing For Aggregate Base Lifts Shall Meet The Requirements Set Forth For Subbase And Subgrade In Notes 5,6,7, And 8 On This Sheet.

FLEXIBLE PAVEMENT REQUIREMENTS

11.) Specifications For Asphalt Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Sections 402. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review.

12.) Tack Coat Shall Be Placed In Accordance With The Most Recent INDOT Standard Specifications For Asphalt Pavements.

13.) Roadways Which Have Exposed Milled Areas Shall Place And Compact Temporary Asphalt Pavement, Cold Mix Or Hot Mix, At The Milled Joints To Smooth The Transition Between The Milled Surface And Unmilled Surface.

RIGID PAVEMENT REQUIREMENTS

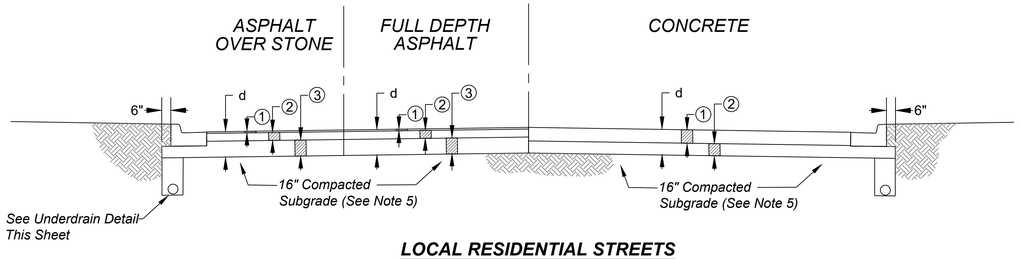
14.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Conractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review.

15.) All PCCP Pavement Shall Be Cured With An Approved White Pigmented Liquid Membrane Forming Compound In Accordance With INDOT Standard Specifications 501.20 and 504, Most Recent Version.

16.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.

17.) Wherever Rigid Pavement Is To Be Used, The Contractor Shall Submit A Detailed Paving Plan To The City Engineer And/Or Street Commissioner For Approval. The Paving Plan Shall Show The Location And Type Of Jointing (Construction, Contraction, And Expansion Joints) To Be Used In The Construction. The Location And Type Of Jointing Shall Meet The Requirements Of The Most Recent INDOT Standard Details And Specifications.

18.) For Local Residential Streets And Parking Lots With Concrete Pavement, 4 Inch Compacted INDOT No.8 Aggregate Base May Be Waived By The City Engineer And/Or Street Commissioner If Adequate Subgrade Is Present. Adequacy Of Subgrade Shall Be Determined Solely By The City Engineer And/Or Street Commissioner Based On A Contractor Performed Proof-Roll With A Fully Loaded Tri-Axle Dump Truck.



LOCAL RESIDENTIAL STREETS

ASPHALT OVER STONE

d = 13 ½"

① 1 ½" HMA Surface Type B (165 #/SY)

② 4" HMA Intermediate Type B (440 #/SY)

③ 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)

FULL DEPTH ASPHALT

d = 9 ½"

① 1 ½" HMA Surface Type B (165 #/SY)

② 3" HMA Intermediate Type B (330 #/SY)

③ 5" HMA Base Type B (550 #/SY)

CONCRETE

d = 10"

① 6" Concrete Pavement

② 4" Compacted INDOT No.8 Crushed Aggregate Base

RESIDENTIAL COLLECTOR AND NON-RESIDENTIAL LOCAL STREETS

ASPHALT OVER STONE

d = 16 ½"

① 1 ½" HMA Surface Type B (165 #/SY)

② 3" HMA Intermediate Type B (330 #/SY) Over 4" HMA Base Type B (440 #/SY)

③ 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)

FULL DEPTH ASPHALT

d = 12"

① 1 ½" HMA Surface Type B (165 #/SY)

② 3" HMA Intermediate Type B (330 #/SY)

③ 3 ½" HMA Base Type B (385 #/SY) Over 4" HMA Base Type B (440 #/SY)

CONCRETE

d = 11"

① 7" Concrete Pavement

② 4" Compacted INDOT No. 8 Crushed Aggregate Base

NON-RESIDENTIAL COLLECTOR AND ARTERIAL STREETS

ASPHALT OVER STONE

d = 17 ½"

① 1 ½" HMA Surface Type C (165 #/SY)

② 3" HMA Intermediate Type C (330 #/SY) Over 5" HMA Base Type C (550 #/SY)

③ 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)

FULL DEPTH ASPHALT

d = 13"

① 1 ½" HMA Surface Type C (165 #/SY)

② 3" HMA Intermediate Type C (330 #/SY)

③ 4" HMA Base Type C (440 #/SY) Over 4 ½" HMA Base Type C (495 #/SY)

CONCRETE

d = 12"

① 8" Concrete Pavement

② 4" Compacted INDOT No. 8 Crushed Aggregate Base

INDUSTRIAL STREETS

To Be Determined By The City Based Upon Traffic Volume, Street Design Speed, And Soil Conditions

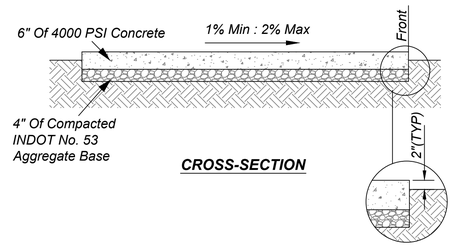
RURAL STREETS

To Be Determined By The City Based Upon Traffic Volume, Street Design Speed, And Soil Conditions

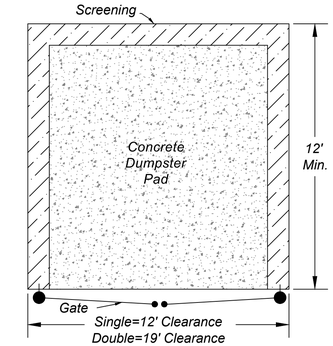
PARKING LOTS

Design Professional Shall Design Pavement Sections For Parking Lots Based On Site Subgrade Conditions, Use, And Expected Loading. Parking Lot Pavement Design Shall Be Subject To Approval By The City Engineer. At Minimum, Parking Lot Pavement Sections Shall Meet The Following Criteria:

LIGHT (General Car & Light Truck Parking):	1 ½" HMA Surface Type B Over 2" HMA Intermediate Type B Over 6" Compacted Aggregate #53
MEDIUM (Access Roads & Drives, Store Frontage, Fuel/Service Stations):	Same Criteria As Local Residential Streets
HEAVY (Truck Loading Areas, Heavy Truck Parking, Warehouse And Industrial Areas):	Same Criteria As Arterial Streets



CROSS-SECTION



PLAN

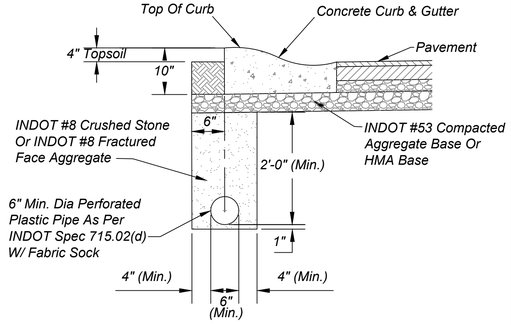
NOTES:

1.) Screening Shall Meet All Requirements Set Forth In The Unified Development Ordinance.

2.) Concrete Pad Shall Be Reinforced With 6x6wwf Or #5 Bars @ 18" O.C. If Deemed Necessary By The City Engineer.

CONCRETE DUMPSTER PAD DETAIL

Scale: None



UNDERDRAIN DETAIL

Scale: None

Rev. No.	REVISIONS Description	Date
1	Entire Set	07/26/2011
2	References To New UDO, Revised Underdrain Detail, Added Rural Section	01/10/2014
3	Updated Entire Set	02/11/2020

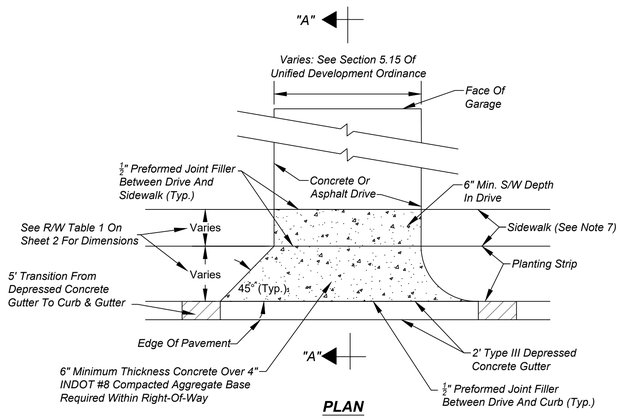
MATTHEW J. HOUSER REGISTERED No. PE11100675 STATE OF INDIANA PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

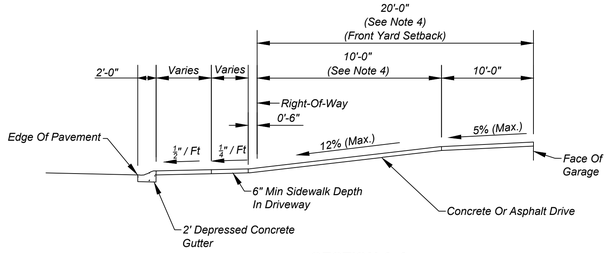
CITY OF SHELBYVILLE

PAVEMENT DETAILS AND NOTES

SHEET 4 OF 18



PLAN



SECTION A-A

TYPICAL SUBDIVISON RESIDENTIAL PRIVATE DRIVE

Scale: None

RESIDENTIAL DRIVES NOTES

1.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crest Vertical Curves, Nor 10% For Sag Vertical Curves.

2.) Frontage Of All Lots Shall Drain To Adjacent Streets Unless Otherwise Approved By The City Engineer.

3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.

4.) Use Actual Setback As Shown On Plat And As Provided By The City Of Shelbyville Unified Development Ordinance.

5.) When A Private Drive Requires A Pipe To Ensure Proper Storm Drainage, The Pipe Shall Be Designed By A Registered Engineer Or Land Surveyor. The Pipe Shall Have End Sections At Both The Upstream And Downstream Ends. The Ends Of The Pipe Shall Extend A Minimum Of 4 Feet Beyond The Limits Of The Drive Surface. Minimum Pipe Size Shall Be 12 Inches.

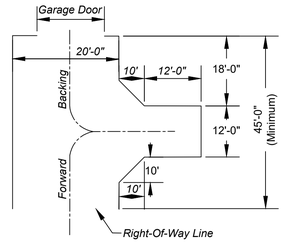
6.) Concrete Drive Approaches Shall Be Constructed In Accordance With Sections 502 And 504 Of The Most Recent Version Of The Indiana Department Of Transportation Standard Specifications.

7.) Refer To Sheet 2 For Required Width Of Concrete Sidewalk.

8.) Drives Shall Provide Positive Drainage Toward The Roadway. Slope Between The Curb And Sidewalk Shall Be Between 0.6% And 4%. Slope Along Sidewalk Shall Not Exceed 2% Per ADA Requirements. Slope Behind The Sidewalk Shall Be Between 1% And 12%.

9.) For Additional Driveway Specifications, See Sections 5.12 Through 5.15 Of The City Of Shelbyville Unified Development Ordinance.

10.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).



STRAIGHT IN - BACK OUT

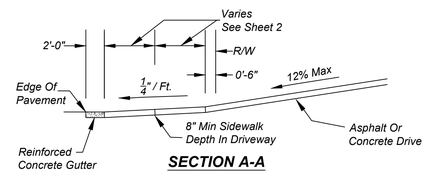
PRIVATE DRIVE TURN-AROUND:

1.) Any Residential Lot That Fronts Onto A Road Classified As Either A Collector Or An Arterial Roadway Shall Have A Private Drive Turn Around.

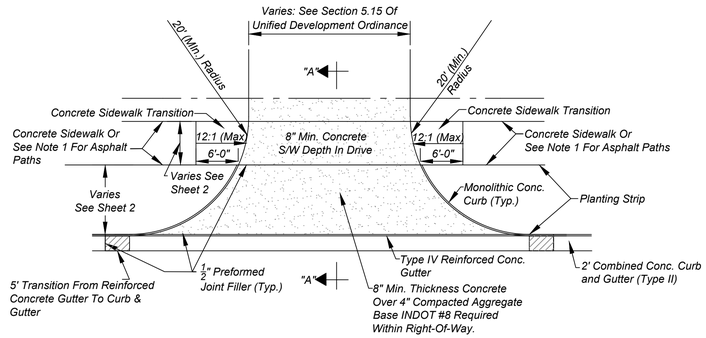
2.) See The Typical Subdivision Private Drive Detail On This Sheet For Additional Drive Requirements.

PRIVATE DRIVE TURN-AROUND

Scale: None



SECTION A-A



TYPICAL COMMERCIAL PRIVATE DRIVE

Scale: None

COMMERCIAL PRIVATE DRIVE NOTES

1.) Asphalt Path Terminations Within The Public Right-Of-Way At Commercial Drives, Private Drives, Or Approaches Shall Be Accomplished With A 6' Minimum Length Of Concrete Sidewalk Transition (Increased Length Of Concrete Sidewalk Transition As Required To Meet The 12:1 Maximum Slope Requirement) So That The Asphalt Path Meets The Concrete Sidewalk Transition At A Neat Line Perpendicular To The Path Alignment.

2.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crest Vertical Curves Nor 10% For Sag Vertical Curves.

3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.

4.) Use Actual Setback As Shown On Plat And As Provided By The City Of Shelbyville Unified Development Ordinance.

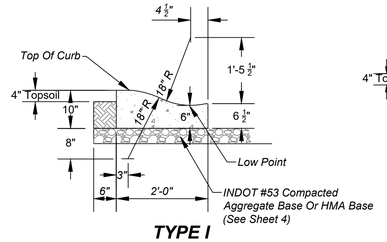
5.) When A Private Drive Requires A Pipe To Ensure Proper Storm Drainage, The Pipe Shall Be Designed By A Registered Engineer Or Land Surveyor. The Pipe Shall Have End Sections At Both The Upstream And Downstream Ends. The Ends Of The Pipe Shall Extend A Minimum Of 4 Feet Beyond The Limits Of The Drive Surface. Minimum Pipe Size Shall Be 12 Inches.

6.) Concrete Drive Approaches Shall Be Constructed In Accordance With Sections 502 And 504 Of The Most Recent Version Of The Indiana Department Of Transportation Standard Specifications.

7.) Drives Shall Provide Positive Drainage Toward The Roadway. Slope Between The Curb And Sidewalk Shall Be Between 0.6% And 4%. Slope Along Sidewalk Shall Not Exceed 2% Per ADA Requirements. Slope Behind The Sidewalk Shall Be Between 1% And 12%.

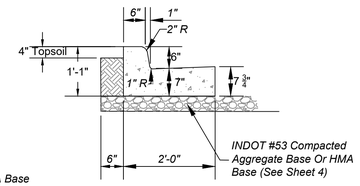
8.) For Additional Driveway Specifications, See Sections 5.12 Through 5.15 Of The City Of Shelbyville Unified Development Ordinance.

10.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).



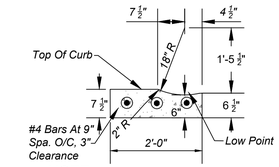
TYPE I
2' CONCRETE ROLL CURB & GUTTER (RESIDENTIAL STREETS ONLY)

Scale: None



TYPE II
2' COMBINED CONCRETE CURB & GUTTER

Scale: None

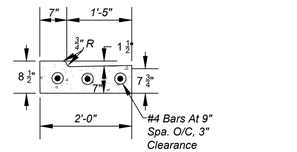


NOTE:

Depressed Reinforced Concrete Gutter Is Req'd At All Private Drives That Intersect A Public Road With Type I 2' Concrete Roll Curb And Gutter Or Similar, When Type I Curb Is To Be Depressed.

TYPE III
2' DEPRESSED REINFORCED CONCRETE GUTTER

Scale: None

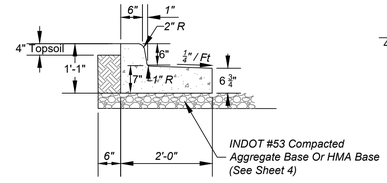


NOTE:

Truncated Reinforced Concrete Gutter Is Req'd. At All Private Drives That Intersect A Public Road With Type II 2' Combined Concrete Curb And Gutter Or Similar.

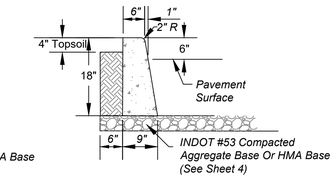
TYPE IV
2' TRUNCATED REINFORCED CONCRETE GUTTER

Scale: None



TYPE II
2' MODIFIED COMBINED CONCRETE CURB & REVERSE GUTTER

Scale: None



TYPE V
18" BOX CURB WITH 6" FACE

Scale: None

CURB & GUTTER CONSTRUCTION NOTES

1.) Removal And Replacement Of Existing Curb Shall Begin And End At The Nearest Joint.

2.) At The Point Where A Curb Ends, A 5 Ft. Transition Taper Down To Edge Of Pavement Grade Shall Be Constructed.

3.) Concrete Curbs Shall Be Constructed In Accordance With The Most Recent Version Of INDOT Standard Specifications Section 605. Control Joints Shall Be Spaced Maximum 10 Ft. Apart. Saw Cuts Or Tooled Joints Shall Be Vertical And Neat.

4.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.

5.) If Any Curb With Lettering Showing The Location Of A Utility Service Line (S,W,G,Etc.) Is Removed, Such Lettering Shall Be Placed In The New Curb At The Same Location As The Corresponding Utility Service Line. See Note 6 On Sheet 13.

6.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).

Rev. No.	REVISIONS Description	Date
1	Entire Set	07/26/2011
2	ADA Compliance Notes, References To New UDO	01/10/2014
3	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

CURB AND DRIVEWAY DETAILS AND NOTES

SIDEWALK CONSTRUCTION

1.) Care Shall Be Taken To Assure A Uniform Grade On All Ramps With No Grade Breaks.

2.) ½" Preformed Joint Filler Shall Be Incorporated At A Maximum Spacing Of 48 Feet Of Walk And When Abutting Concrete Curbs, Structures, Walls, Or Other Fixed Objects.

3.) Surface Texture Shall Be Obtained By A Coarse Brooming, Transverse To The Profile Of The Sidewalk.

4.) Distance Between Contraction Joints Shall Be Consistent Between Driveways.

5.) All Concrete Sidewalks Shall Be 4" Thick, Except At Residential Drive Crossings Where The Minimum Thickness Shall Be 6". At Commercial Drives, The Concrete Sidewalk Thickness Shall Be 8".

6.) Concrete Sidewalks Shall Be Constructed In Accordance With The Latest Version Of INDOT Specifications Section 604. Sawcuts Or Tooled Joints Shall Be Uniform, Vertical, And Neat.

7.) A Minimum Of 4" Thick Compacted Granular Base Or 4" Pea Gravel Bed Shall Be Placed Prior To The Construction Of The Sidewalk. Subgrade Should Be Compacted With Plate Compactor. Any Utility Trenches Should be Backfilled And Compacted Per City Standards.

8.) Sidewalk Longitudinal Grade Shall Be Within ± 1% Of The Adjacent Roadway's Longitudinal Grade Except At Curb Ramps.

9.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.

10.) All Sidewalks Within Public Right-Of-Ways Shall Comply With The Most Recent Requirements Of The Americans With Disabilities Act (ADA). Sidewalks Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).

ADA SIDEWALK CURB RAMP CONSTRUCTION

1.) All ADA Sidewalk Curb Ramps Shall Comply With The Most Recent Requirements Of The Americans With Disabilities Act (ADA). ADA Ramps Shall Meet The Requirements Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG). All Ramps Shall Comply With The Most Recent INDOT Standard Specifications And The City Of Shelbyville's Most Recent Standards. Curb Swipes Required For Curb Ramps Shall Be Provided At Time Of Initial Construction.

2.) Minimum Width Of Curb Ramp Shall Be 4 Feet Or Match Sidewalk Width, Whichever Is Greater, Not Including Flares. Maximum Vertical Slope Of Ramps Shall Be 12:1. Maximum Horizontal Slope Shall Be 50:1.

3.) ADA Curb Ramps Shall Be Located As Shown On The Plans Or As Directed By The City Engineer Or Street Commissioner.

4.) Type C Ramps Shall Be Provided Adjacent To Each Point Of Tangency At All Corners Of Every Street Intersection Where There Is An Existing Or Proposed Sidewalk And Curb. In Case Of "T"-Intersection, A Type C Ramp Shall Be Provided Adjacent To Each Corner Ramp. Type C Ramps Also Shall Be Provided At Walk Locations At Mid-Block In Vicinity Of Hospitals, Medical Centers Or Athletic Stadiums. The Use Of Details Contrary To Those Shown Hereon Shall Require The Prior Written Approval Of The City.

5.) Ramps Shall Direct Pedestrians Perpendicularly Across Roadway To Another Ramp. Where A Ramp Abuts A Roadway, The Ramp Elevation Should Be Flush With The Roadway With No "Lip".

6.) Surface Texture Of The Ramp Shall Be That Obtained By A Coarse Brooming Transverse To The Slope Of The Ramp.

7.) Ramps Shall Be Provided On Both Sides Of A Driveway Whenever A Curbed Driveway Crosses A Sidewalk.

8.) Care Shall Be Taken To Assure A Uniform Grade On All Ramps With No Breaks In Grade.

9.) Drainage Structures Shall Not Be Placed In Line With The Ramps Except Where Existing Drainage Structures Are Being Utilized In The New Construction. Location Of The Ramps Shall Take Precedence Over Location Of Drainage Structures.

10.) The Normal Gutter Line Profile Shall Be Maintained Through The Area Of The Ramp.

11.) The Expansion Joint For The Ramp Shall Be A Maximum ½" Wide. The Top Of The Joint Filler For All Ramp Types Shall Be Flush With Adjacent Concrete.

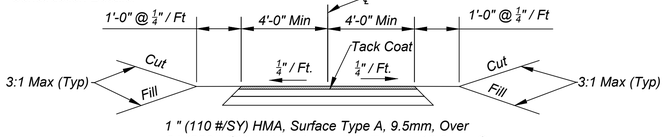
12.) Crosswalk And Stop Line Marking, When Used, Shall Be So Located As To Stop Traffic Short Of Ramp Crossing.

13.) Slope Of Ramp May Be Warped Only When Field Conditions Warrant And When Approved By The City Engineer Or Street Commissioner.

14.) Sidewalk Ramps Shall Not Be Constructed Within Any Portion Of A Driveway.

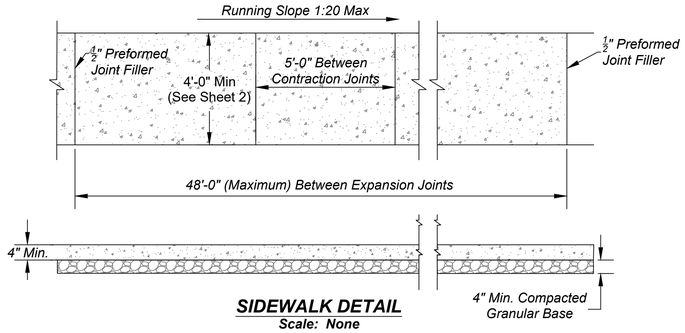
15.) Items On This Sheet Shall Be Constructed In Accordance With Sections 604 And 605 Of The Most Current Indiana Department Of Transportation Standard Specifications.

16.) Refer to INDOT Standard Drawings For Alternate Sidewalk Curb Ramp Configurations And Construction Details.

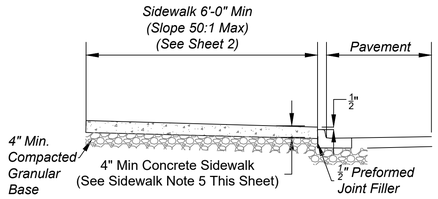


1 " (110 #/SY) HMA, Surface Type A, 9.5mm, Over
3 " (330 #/SY) HMA, Intermediate Type A, 19.0mm, Over
4" Compacted INDOT #53 Crushed Aggregate Base

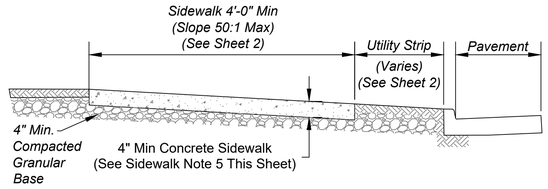
TYPICAL ASPHALT PATH CROSS SECTION
Scale: None



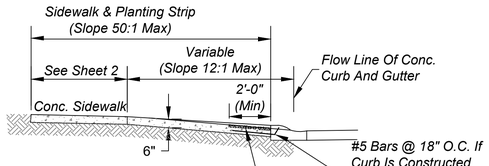
SIDEWALK DETAIL
Scale: None



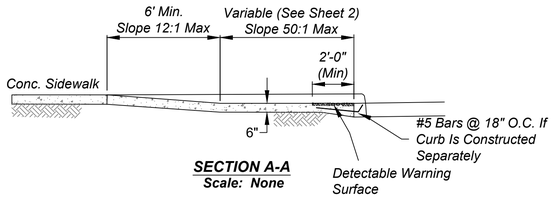
SECTION THROUGH SIDEWALK ADJACENT TO CURB
Scale: None



SECTION THROUGH SIDEWALK WITH UTILITY STRIP
Scale: None



SECTION A-A
Scale: None



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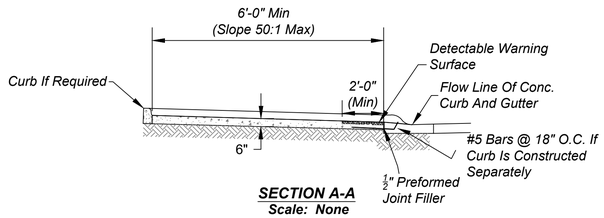

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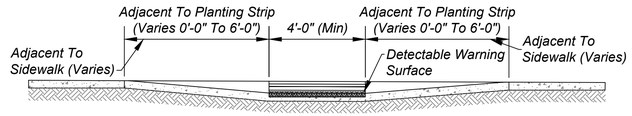
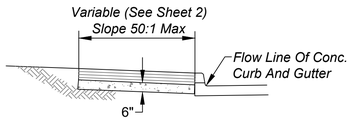


SECTION C-C
Scale: None



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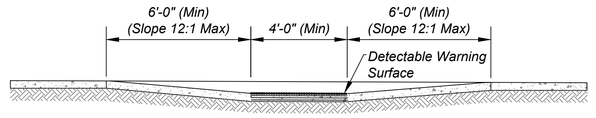
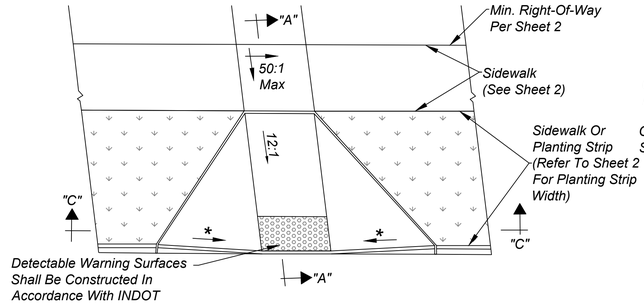


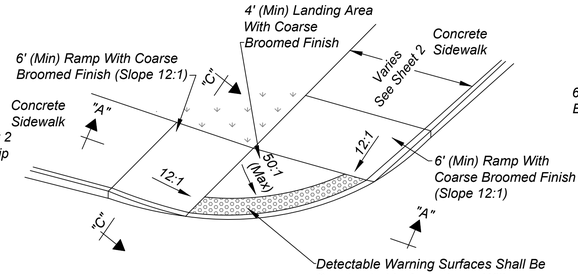
SECTION C-C
Scale: None



Detectable Warning Surfaces Shall Be Constructed In Accordance With INDOT Standard Drawing E 604-SWCR-02 And Sections 604.03 And 905.05 Of The Most Recent INDOT Standard Specifications. Brick Detectable Warnins Are Not Permitted.

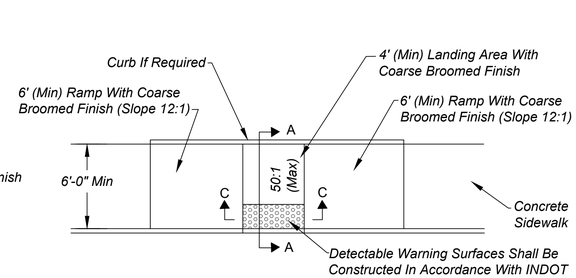
*Wing Slope To Be 3:1 If Adjacent To Planting Strip, 12:1 If Adjacent To Sidewalk

CURB RAMP TYPE C
Scale: None



Detectable Warning Surfaces Shall Be Constructed In Accordance With INDOT Standard Drawing E 604-SWCR-02 And Sections 604.03 And 905.05 Of The Most Recent INDOT Standard Specifications. Brick Detectable Warnings Are Not Permitted.

CURB RAMP TYPE H
Scale: None



Detectable Warning Surfaces Shall Be Constructed In Accordance With INDOT Standard Drawing E 604-SWCR-02 And Sections 604.03 And 905.05 Of The Most Recent INDOT Standard Specifications. Brick Detectable Warnings Are Not Permitted.

CURB RAMP TYPE K
Scale: None

NOTE:
Type H Ramps Are Not Permissible Unless Approved By City Engineer. Ramps At An Intersection Should Be Two Type C Ramps

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	ADA Compliance Notes, Revised Asphalt Path X-Sec	01/10/2014
3	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

SIDEWALK AND ADA RAMPS DETAILS AND NOTES

SHEET 6 OF 18

GENERAL NOTES:

1.) The Contractor Shall Notify The City Of Shelbyville At Least 24 Hours Prior To Beginning Backfill Or Excavation. If The Permanent Patch Placement Is To Be A Separate Operation, The Contractor Shall Also Notify The City Of Shelbyville 24 Hours Prior To Placement Of Patch.

2.) The Contractor Shall Be Responsible For Maintaining And Repairing Any And All Open Cuts Permitted Within The City Of Shelbyville Right-Of-Way For A Period Of One Year Upon Final Acceptance By The City.

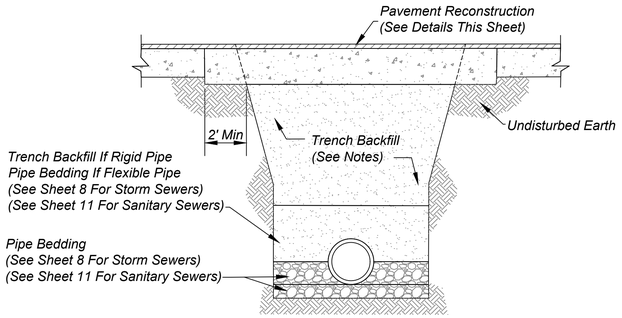
3.) Saw Cut Existing Pavement So That Cut Provides A Square, Vertical, Neat And Uniform Edge. Jagged Or Irregular Saw Cuts Are Not Permitted And Shall Be Repaired By The Contractor At No Cost To The City.

4.) All Materials Shall Comply With Specifications As Required By The Shelbyville Department Of Engineering.

5.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade For All Street Cuts.

6.) Trench Backfill And Pavement Restoration Shall Be Conducted In An Expedient Manner.

7.) Prior to Conducting Any Work Within The City Of Shelbyville Right-Of-Way, Contractor Shall Secure A Right-Of-Way Permit From The City Of Shelbyville Engineering Department. See General Note 2 On Sheet 1.



NOTES:

1.) Trench Spoils Shall Be Removed From The Work Site And Disposed Of Out Of The Right-Of-Way.

2.) Whenever A Trench Opening Encroaches Within 5 Ft. Of An Existing Collector Or Arterial Street, Flowable Fill Shall Be Used For Trench Backfill.

3.) Whenever A Trench Opening Encroaches Within 5 Ft. Of A Proposed Collector Or Arterial Street, Flowable Fill Or Granular Backfill Shall Be Used For Trench Backfill.

4.) Whenever A Trench Opening Encroaches Within 5 Ft. Of An Existing Or Proposed Local Street, Alley, Private Drive, Or Sidewalk; Flowable Fill Or Granular Backfill Shall Be Used For Trench Backfill.

5.) Approved Excavated Material May Be Used For Backfill Outside Of Limits Specified Herein. Excavated Material Shall Be Free Of Organic Material, Rocks Larger Than 6 Inches, Frozen Material, Debris, Excessive Water, Or Other Unsuitable Material As Determined By The City Of Shelbyville.

6.) The City Engineer And/Or Street Commissioner Reserve The Right To Require Flowable Backfill When They Deem Necessary.

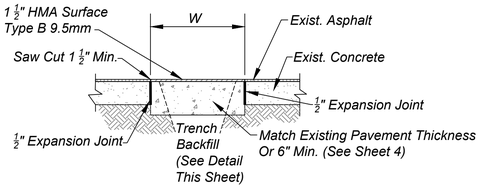
7.) Flowable Fill, When Used, Shall Be Mixed And Placed As Specified In The Latest INDOT Standard Specifications, Section 213.

8.) The Compressive Strength Of The Flowable Fill Shall Not Be Less Than 50 PSI Nor Greater Than 100 PSI At 28 Days.

9.) Whenever Granular Backfill Is Placed In A Trench, Contractor Shall Place And Compact Material In Lifts Not To Exceed 6 Inches In Thickness. Contractor Shall Compact Material To A Minimum Of 95% Maximum Dry Density, At Optimum Moisture Content, As Per AASHTO T99. The City Reserves The Right To Require Compaction Testing At Its Discretion By An Independent Testing Firm At The Contractor's Expense

10.) Whenever A Steel Plate Is Used To Cover A Trench, The Street Department Shall Be Immediately Notified.

TRENCH BACKFILL DETAIL
Scale: None



NOTES:

1.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review When Required.

2.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.

3.) Contractor Shall Contact The Shelbyville Department Of Engineering To Determine If Anchors Or Dowels Are Required On Existing Concrete Pavement Repairs.

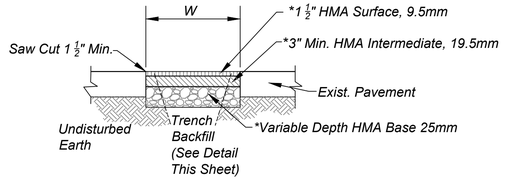
4.) A ½" Expansion Joint Shall Be Placed Against Existing Concrete On Both Sides Of Trench. Joint Shall Be Sealed With Crack Sealant (See Note 7).

5.) The Concrete Pavement And The Existing Vertical Edge Of Pavement Shall Be Tack Coated Prior To The Placement Of New Asphalt. Tack Coat Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications.

6.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade.

7.) A 2 Inch Wide Band Of Crack Sealant Shall Be Applied Along The Joint Between The Existing And New Asphalt Surface. Sealant Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications, Section 408.

CONCRETE WITH BITUMINOUS SURFACE PATCH STREET CUT DETAIL
Scale: None



*See Note 1 Below

NOTES:

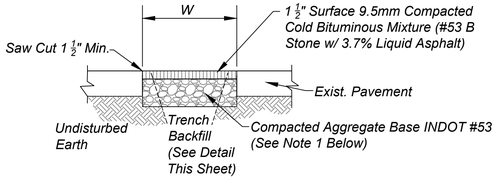
1.) HMA Type (A,B, or C) And Thickness Of HMA Base Layer Shall Be In Accordance With The Pavement Construction Details On Sheet 4 Based On Street Classification.

2.) The Existing Vertical Edge Of Pavement Shall Be Tack Coated Prior To The Placement Of New Asphalt. Tack Coat Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications.

3.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade.

4.) A 2 Inch Wide Band Of Crack Sealant Shall Be Applied Along The Joint Between The Existing And New Asphalt Surface. Sealant Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications, Section 408.

BITUMINOUS PATCH STREET CUT DETAIL
Scale: None



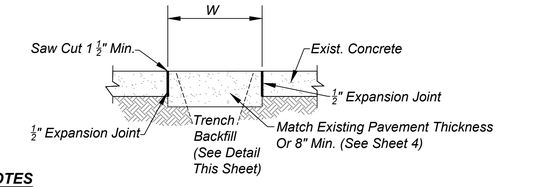
NOTES:

1.) The Contractor Shall Reference Shelbyville Standard Cross-Section (Sheet 4) As To the Required Thickness Of The Compacted Aggregate Base.

2.) Temporary Repair Patch Is Required When Restoration Work Occurs Between November 15 And April 15, Or When Temperature Is Less Than 40 Degrees Fahrenheit.

3.) Contractor Shall Be Responsible For Maintenance And Repair Of Temporary Patch Until Permanent Patch Is Installed.

TEMPORARY REPAIR PATCH STREET CUT DETAIL
Scale: None



NOTES

1.) Surface Of Repair Shall Be Broom Finished At Right Angles To Traffic Flow.

2.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review When Required.

3.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.

4.) Contractor Shall Contact The Shelbyville Department Of Engineering To Determine If Anchors Or Dowels Are Required On Existing Concrete Pavement Repairs.

5.) A ½" Expansion Joint Shall Be Placed Against Existing Concrete On Both Sides Of Trench. Joints Shall Be Sealed With Concrete Joint Sealant In Accordance With INDOT Standard Specifications, Sections 503 And 906.

CONCRETE PATCH STREET CUT DETAIL (FOR CUTS WITHIN CONCRETE STREETS)
Scale: None

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Revised Trench Backfill Detail	01/10/2014
3	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

TRENCH BACKFILL AND STREET CUT DETAILS AND NOTES

SHEET 7 OF 18

REINFORCED CONCRETE PIPE:

1.) Reinforced Concrete Pipe (RCP) Shall Be Class III, IV, or V As Specified In ASTM C-76.

DEPTH OF FILL OVER PIPE	CLASS
Between 2 Ft. And 10 Ft.	III
Between 10 Ft. And 16 Ft.	IV
16 Ft. Or Greater	V

2.) Reinforced Elliptical Concrete Pipe Shall Be Class HE-III Or HE-IV As Specified In ASTM C-507

DEPTH OF FILL OVER PIPE	CLASS
Between 2 Ft. And 10 Ft.	HE-III
10 Ft. And Greater	HE-IV

3.) All RCP Storm Sewer Pipe Shall Have A Minimum Of 2 Feet Of Cover Under Pavement And A Minimum 1.5 Feet Of Cover Outside Of Pavement, As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.

4.) Lift Holes Are Not Allowed For Pipes Less Than 24 Inches In Diameter. A Maximum Of Two Lift Holes Are Allowed For Pipe 24 Inches In Diameter Or Larger. Lift Holes Shall Be Repaired According To The Most Recent INDOT Specifications.

5.) Fittings And Specialties Shall Be In Accordance With The Specifications For The Type Of Pipe Being Used.

6.) Each Pipe Section Shall Be Marked With Date Of Manufacture, Size And Class Of Pipe, Specification Designation, Manufacturer And Plant Identification.

7.) Pipe Shall Be Furnished With A Bell Or Groove On One End Of A Unit Of Pipe And A Spigot Or Tongue On The Adjacent End Of The Adjoining Pipe. All Joints Shall Have A Groove On The Spigot For Placement Of A Rubber "O"- Ring Or Profile Gasket In Accordance With ASTM C 443. The Gasket Shall Be A Continuous Ring Which Fits Snugly Into The Annular Space Between The Overlapping Surfaces Of The Assembled Pipe Joint To Form A Flexible Soil-Tight Seal.

8.) Pipe Size And Classification Shall Be Called Out In Plan And Profile Of Construction Drawings.

9.) Storm Sewer Pipe Shall Have A Minimum Horizontal Separation Of 10 Feet From Sanitary Sewer Pipe Or Water Main Pipe. All Pipe Crossings Shall Have A Minimum Vertical Separation Of 1.5 Feet. Dimensions Are Measured From The Outside Of Pipe To Outside Of Pipe.

STORM SEWER POLYVINYL CHLORIDE (P.V.C.) SEWER PIPE:

1.) PVC Pipe Greater Than 24 Inches In Diameter May Only Be Used When Approved By The City Engineer Or MS4 Operator.

2.) Pipe Diameters Of 12 Inches And 15 Inches Shall Meet Or Exceed All The Requirements Of ASTM D-3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D-1784 For A Summarization Of Cell Class Properties. Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F-679, And Shall Have A Minimum Cell Classification of 12454.

3.) P.V.C. Pipe Shall Conform To The Following Specifications Based On Pipe Diameter And Depth Of Cover:

PIPE DIAMETER	DEPTH OF FILL OVER PIPE	PIPE SPECS	ASTM STANDARD
6" - 15"	Less Than 15 Feet	SDR-35 Type PSM	D-3034
6" - 15"	15 Feet Or Greater	SDR-26 Type PSM	D-3034
18" or Greater	Less Than 15 Feet	PS 46	F-679
18"or Greater	15 Feet Or Greater	PS 115	F-679

P.V.C. SDR-35 And PS-46 Pipe Shall Have A Minimum Pipe Stiffness Of 46 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412. P.V.C. SDR-26 And PS-115 Pipe Shall Have A Minimum Pipe Stiffness Of 115 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412.

4.) Pipe Joints Shall Have A Bell Wall, Gasket Groove And Spigot Which Is Integral With The Pipe. The Assembly Of Joints Shall Be In Accordance With Pipe Manufacturer's Recommendations And ASTM D-3212. No Solvent Cement Joints Shall Be Allowed.

5.) Gasket Material Shall Meet Or Exceed All Requirements Of ASTM D3212-07, Standard Specification For Joints For Drain And Sewer Plastic Pipes Using Flexible Elastometric Seals.

6.) Each Pipe Section Shall Be Marked With Name Of Manufacturer, Trademark Or Tradename, Nominal Pipe Size, Production/Extrusion Code, Material And Cell Class Designation And ASTM Number.

7.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.

8.) All PVC Storm Sewer Pipe Shall Have A Minimum Of 2 Feet Of Cover As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.

STORM SEWER H.D.P.E. AND H.P. PIPE:

1.) HDPE And HP Pipe May Only Be Used When Approved By The City Engineer Or MS4 Operator. Deflection Testing Is Required For HDPE And HP Pipe.

2.) HDPE And HP Pipe Greater Than 48 Inches In Diameter Shall Not Be Allowed For Use In The City Of Shelbyville.

3.) Requirements For Test Methods, Dimensions And Marking Shall Meet The Requirements Of A.A.S.H.T.O. Specifications M-252 And M-294 For HDPE Pipe, And ASTM D2321 For HP Pipe.

4.) For HDPE Pipe, Pipe And Fittings Shall Be Made Of Polyethylene Compounds Which Meet Or Exceed The Requirements Of Type III, Category 4 Or 5, Grade P33 Or P34, Class C Per ASTM D-1248 With The Applicable Requirements Defined In ASTM D-1248. For HP Pipe, Fittings Shall Confrom To ASTM F2881 And AASHTO M330. Pipe And Fitting Production Shall Be Impact Modified Copolymer Meeting The Material Requirements Of ASTM F2881, Section 5 And AASHTO M330, Section 6.1.

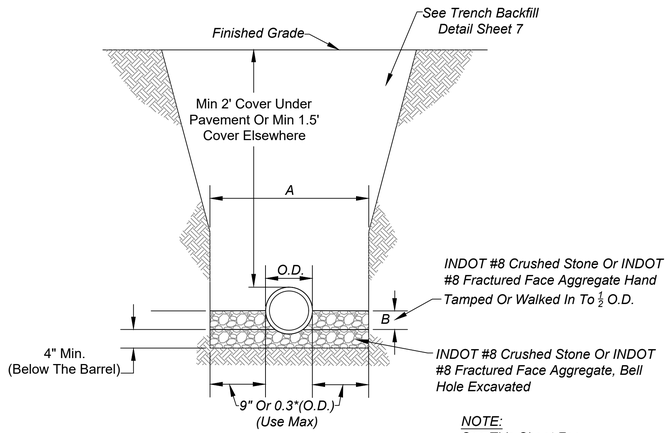
5.) Minimum Pipe Stiffness Values Shall Be In Accordance With A.A.S.H.T.O. Specifications M-294.

6.) H.D.P.E. Corrugated Pipe Shall Have An Integrally Formed Smooth Interior. HP Pipe Shall Have A Smooth Interior And Annaul Exterior Corrugations.

7.) For HDPE Pipe, Male And Female Pipe Ends Which Allow The Construction Of Overlapping, Gasketed Joints Shall Be In Conformance With ASTM D-3212. Neoprene Gaskets Shall Meet ASTM F-477. For HP Pipe, Pipes Shall Be Joined With Gasketed Integrel Bell And Spigot Joint Meeting The Requirements Of ASTM F2881. Bell And Spigot Fittings Joint Shall Meet ASTM D3212. Corrugated Couplings Shall Be Split Collar, Engaging In At Least 2 Full Corrgations. Spigots Shall Have Gaskets Per ASTM F477.

8.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.

9.) All HDPE And HP Storm Sewer Pipe Shall Have A Minimum Of 2 Feet Of Cover As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.



RCP PIPE BEDDING DETAIL
Scale: None

TABLE 10: RCP PIPE BEDDING TABLE

Pipe Size Nominal (in)	Pipe Size O.D. (in)	A (in)	B (in)	Cubic Yards Of Bedding Per Foot Of Pipe (Cys/Ft)
12	16.0	34.0	8.00	0.079
15	19.5	37.5	9.75	0.094
18	23.0	41.0	11.50	0.110
21	26.5	44.5	13.25	0.127
24	30.0	48.0	15.00	0.144
27	33.5	53.6	16.75	0.173
30	37.0	59.2	18.50	0.204
36	44.0	70.4	22.00	0.275
42	51.0	81.6	25.50	0.356
48	58.0	92.8	29.00	0.448
54	65.0	104.0	32.50	0.550
60	72.0	115.2	36.00	0.662

NOTE:
Contact City Engineer For Elliptical Pipe Details

STORM SEWER GENERAL NOTES:

1.) Storm Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of The City Engineer.

2.) Upon Request, The Contractor Shall Submit Information To The City Engineer Illustrating Conformance With These Specifications.

3.) The Smallest Permissible Storm Sewer Pipe Diameter Is 12 Inches.

4.) The City Of Shelbyville Stormwater Technical Standards Manual Shall Be Referenced For Stormwater Design.

5.) Prior To Earthwork, Pipe Construction, Or Other Activity That May Affect Or Alter Stormwater Runoff, The Downstream Receiving End Of Stormwater Shall Be Secured And Stabilized To Accommodate All Upstream Runoff, Including Offsite. This Includes, But Not Limited To, Downstream Ditch Improvements, Culvert Improvements, Or Constructing Positive Outlet For Retention Facility.

6.) All Culverts Or Ends Of Storm Pipe That Do Not Connect Directly To A Structure Shall Require Precast Flared Reinforced Concrete End Sections. Concrete Toe Anchors Shall Be Required. Revetment Rip-Rap Shall Be Required In Accordance With The Most Recent INDOT Channel Design Guide And INDOT Specifications. Revetment Rip-Rap Shall Be Placed Over Geotextile In Accordance With The Most Recent INDOT Standard Specifications. See Precast Concrete Pipe End Section Detail On Sheet 9.

7.) Pre-Fabricated Galvanized Debris Guard Shall Be Installed On All End Sections. See Debris Guard Detail Sheet 9.

8.) As-Built Record Drawings Shall Be Submitted To The City Plan Commission Office. See General Note 11 On Page 1 For As-Built Requirements.

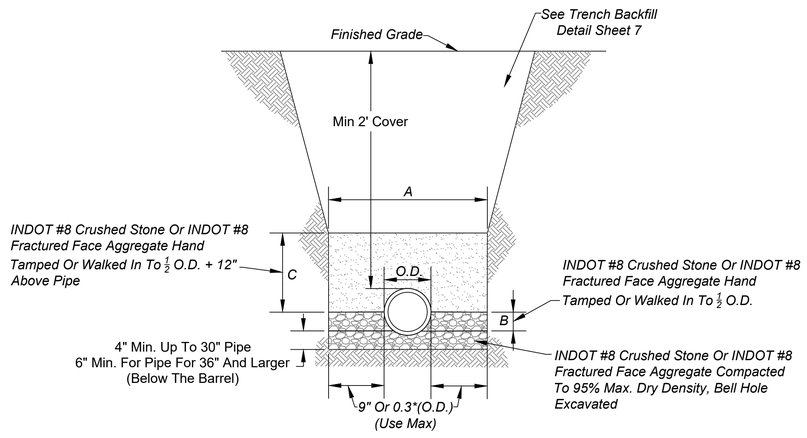


TABLE 11: FLEXIBLE (PVC OR HDPE) PIPE BEDDING TABLE

Pipe Size Nominal (in)	Pipe Size O.D. (in)	A (in)	B (in)	C (in)	Cubic Yards Of Bedding Per Foot Of Pipe (Cys/Ft)
6*	6.3	24.3	3.14	15.14	0.131
8*	8.4	26.4	4.20	16.20	0.151
10*	10.5	28.5	5.25	17.25	0.172
12	12.5	30.5	6.25	18.25	0.192
15	15.3	33.3	7.65	19.65	0.221
18	18.7	36.7	9.35	21.35	0.257
21	22.1	40.1	11.03	23.03	0.294
24	24.8	42.8	12.40	24.40	0.325
27	28.0	46.0	13.98	25.98	0.362
30	32.0	51.2	16.00	28.00	0.425
36	38.3	61.3	19.15	31.15	0.560
42	44.5	71.2	22.25	34.25	0.708
48	50.8	81.3	25.40	37.40	0.875

* Sanitary Sewer Only

NOTE:
Contact City Engineer For Elliptical Pipe Details

FLEXIBLE (PVC OR HDPE) PIPE BEDDING DETAIL
Scale: None

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020
3	Added H.P. Pipe	05/11/2021

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

STORM SEWER BEDDING AND PIPE DETAILS AND NOTES

STORM SEWER DEFLECTION TESTING, TELEVISING AND AS-BUILT DRAWINGS:

1.) Deflection Testing Is Required For All Mainline Flexible Storm Sewer Pipe Installed In The City Of Shelbyville. The City Engineer And MS4 Operator Shall Be Given A Minimum Of 24 Hour Written Notice Of Deflection Testing. A Nine-Point "Go-No-Go" Mandrel Shall Be Used For The Deflection Test. A Proving Ring Shall Be Provided For Each Mandrel. The "Go-No-Go" Mandrel Shall Be Manually Pulled Without The Use Of Any Mechanical Devices. An Allowable Deflection Of 5 Percent Of Inside Pipe Diameter Will Be Acceptable After All Backfilling Has Been In Place For 30 Days.

2.) Contractor Shall Bear All Testing Costs.

3.) All Pipe Exceeding The Allowable Deflection Shall Be Replaced Or Rerounded. The Replaced Or Rerounded Section Shall Be Retested 30 Days After Replacement Or Rerounding.

4.) Closed Circuit Television (CCTV) Inspection May Be Required to Be Performed In Areas Of Concerned On Pipes Installed Within The City Of Shelbyville For The Purposes Of Conveying Storm Water. Televising Shall Be Done After Deflection Testing.

5.) The Contractor Or Developer Responsible For Installing The Storm Sewer Pipe Shall Employ/Hire The Contractor Responsible For The Television Inspection Services. The Contractor Or Developer Shall Contact The City Engineer To Schedule The CCTV Inspection.

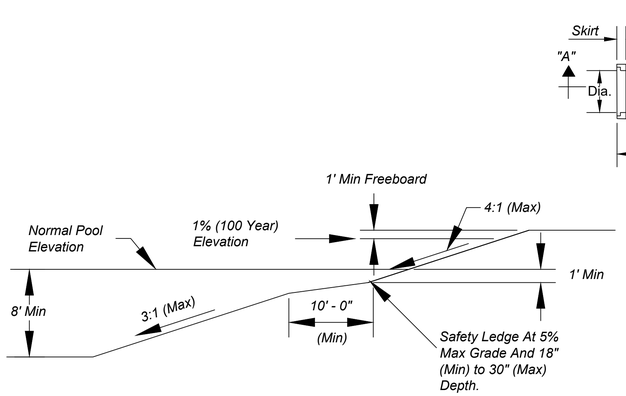
6.) All Pipe Segments Shall Be Thoroughly Cleaned Before The Start Of The CCTV Inspection.

7.) A Camera Equipped With Remote Control Devices To Adjust The Light Intensity And 1,000 Linear Feet Of Sewer Cable Shall Be Provided. The Camera Shall Transmit A Continuous Image To The Television Monitor As It Is Being Pulled Through The Pipe. The Image Shall Be Clear Enough To Enable The City Of Shelbyville Representative And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The Video / DVD With Linear Footage And Project Number. An Audio Voice-Over Shall Be Made During The Inspection Identifying Any Problems.

8.) The Contractor Shall Bear All Costs Associated With Televising, Line Clearing, And Debris Removal & Disposal.

9.) If Any Pipe And/Or Joint Is Found To Be Faulty Or Leaking, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The City Of Shelbyville.

10.) 2 Digital Copies Of The Entire Sewer Line, Reproduction Map Indicating The Numbers Of All Pipes That Have Been Televised, And As-Built Drawings Shall Be Submitted To The City Of Shelbyville MS4 Operator And City Engineer For Their Records.



TYPICAL DETENTION POND SECTION
Scale: None

NOTES:

1.) Public Safety Shall Be A Paramount Consideration In Storm Water Systems and Pond Design. Providing Safe Retention Is The Applicant's Responsibility.

2.) All Wet And Dry Detention Facilities Shall Be Posted With Warning Signage. All Wet And Dry Detention Facilities Shall Be Posted With Signs Warning Of Rapid Rise In The Water Levels And Strong Hydraulic Forces At Pipe Inlets And Outlets. All Wet Retention Facilities Shall Be Posted With Drowning Hazard Signs, No Swimming Or Wading Signs, And No Ice Skating Signs On All Sides.

3.) All Wet And Dry Detention Facilities Shall Be Designed To Maximize The Distance Between Inflow And Outflow Pipes. Baffles May Be Required If Deemed Necessary By The City Engineer Or MS4 Operator.

4.) All Wet Retention Facilities Located Within 100 Feet Of A Roadway Or Parking Lot Shall Be Designed With Measures To Prevent Vehicular Entry Into The Water. These Measures Shall Include One Or More Of The Following:

A. High-Tension Cable Barrier In Accordance With INDOT Specifications
B. W-Beam Guardrail In Accordance With INDOT Specifications
C. Steel-Backed Timber Guardrail In Accordance With FHWA Standards, Sections 617 And 710.
D. Earth Mound At Least 8 Feet In Height With Maximum 4:1 Slopes
E. Wider Safety Ledge Or Shallow Wetlands Strip Adjacent To Roadway Side Of Pond
F. Thick Vegetative Buffers (i.e. Bushes, etc.) May Be Used As A Secondary Measure To Reduce Errant Vehicle Velocities And To Improve The Appearance Of The Site

The City Engineer or MS4 Operator May Require Additional Measures Based On Site Conditions And Layout.

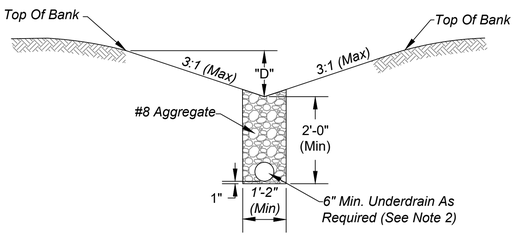
5.) Dam/Embankment Safety And Design Is The Applicant's Responsibility. Dams/Embankments Shall Be Designed To Prevent Failure Due To Erosion, Slope Instability, Overtopping, Heave, And Piping. The Following Elements Shall Be Incorporated In The Design Of All Dams And Embankments:

A. Appropriate Foundation Materials
B. Appropriate Core Fill Materials
C. Maximum 3:1 Side Slopes And Minimum 10 Feet Top Width
D. Emergency Spillway Designed In Accordance With The City Of Shelbyville Stormwater Design Manual And Adquately Protected Against Erosion And Scour
E. Anti-Seep Collar For All Outflow Pipes

6.) Dry Bottom Basins Shall Be Subject To The Maximum Of 3:1 Slope Above The Basin Floor. The Longitudinal Grade Shall Be Minimum 1% (0.5% With A Minimum 6 Inch Diameter Underdrain).

7.) City Engineer May Approve Alternate Detention Pond / Basin Sections.

8.) Access Should Be Provided Around Entire Width Of Pond. See Shelbyville Stormwater Design Manual For Easement Requirements.



SWALE UNDERDRAIN DETAIL
Scale: None

SWALE REGULATIONS ON DEVELOPED LOTS:

1.) Swales Shall Not Be Constructed In Front Yards. The Front Portion Of Lots Shall Be Graded Toward The Street And/Or Side Yard Lines.

2.) Swales Shall Be Constructed With A Minimum 0.5 Percent Profile Grade Provided That A 6-Inch Diameter Underdrain Is Provided For Swales With Less Than 1.0 Percent Profile Grade.

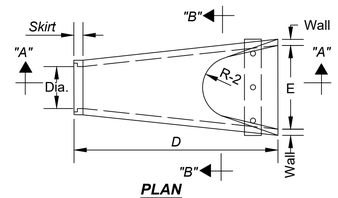
3.) Maximum Swale Depth "D" Shall Be In Accordance With The Following Table:

TABLE 13: SWALE DIMENSIONS AND SPECIFICATIONS

Lot Area (square feet)	Maximum Swale Depth "D" (inches)	Minimum Usable Rear Yard Depth (feet)
Performance Based Lots	D ≤ 24	10
	24 > D < 36	15
	D > 36	20
Greater Than 10,000	48	30

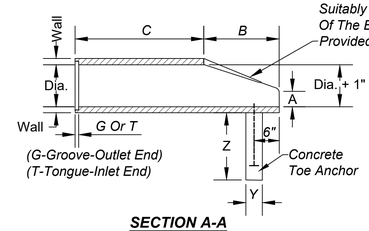
4.) Minimum Usable Rear Yard Depth Shall Lie Between The Furthest Rear Portion Of The Residence And The Top Of Bank Of The Near Swale Slope. The Maximum Slope In This Area Shall Be 5.0 Percent.

5.) Swales Shall Be Graded With Side Slopes No Steeper Than 3h:1v And Lay Totally Within The Drainage Easement Limits.

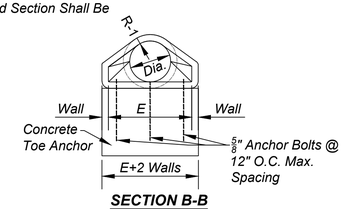


PLAN

End Section End Treatment Involving Horizontal Minimum No. 12 Gauge Hot Dipped Galvanized Steel Tubes Of Suitable Diameter And Suitably Affixed To Sloping Portion Of The End Section Shall Be Provided



SECTION A-A



SECTION B-B

TABLE 12: PRECAST CONCRETE PIPE END SECTION SPECIFICATIONS

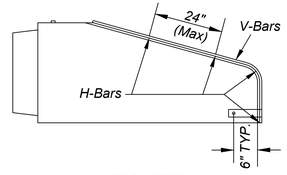
DIA.	WALL	G or T	WT SEC	A	B	C	D	E	DIA.+1"	R-1	R-2	SKIRT	Y	Z
12	2	1-1/2	530	4	24	48-7/8	72-7/8	24	13	10-1/16	9	3-1/2	12	24
15	2-1/4	2	740	6	27	46	73	30	16	12-1/2	11	3-1/2	12	24
18	2-1/2	2-1/2	990	9	27	46	73	36	19	15-1/2	12	4	12	24
21	2-3/4	2-1/2	1280	9	35	38	73	42	22	16-1/8	13	4	12	36
24	3	2-1/2	1520	9-1/2	43-1/2	30	73 -1/2	48	25	16-11/16	14	4-1/2	18	36
27	3-1/4	2-1/2	1930	10-1/2	48	25-1/2	73 -1/2	54	28	17-3/4	14-1/2	4-1/2	12	36
30	3-1/2	3	2190	12	54	19-3/4	73 -3/4	60	31	18-5/16	15	5	12	36
33	3-3/4	3-3/8	3150	13-1/2	58-1/2	39-1/4	97 -3/4	66	34	23-3/4	17-1/2	5-1/2	18	36
36	4	3-1/2	4100	15	63	34-3/4	97 -3/4	72	37	24-1/16	20	5-1/2	18	36
42	4-1/2	3-3/4	5380	21	63	35	98	78	43	27-1/4	22	5-1/2	24	36
48	5	4-1/4	6550	24	72	26	98	84	49	28-1/8	22	5-3/4	24	36
54	5-1/2	4-3/4	8040	27	65	35	100	90	55	32-7/8	24	6-1/4	30	36
60	6	5	8750	30	60	39	99	96	61	36-3/4	24	6-3/4	30	36
66	6-1/2	5-1/2	10630	24	78	21	99	102	67	35-11/16	24	7-1/4	30	36
72	7	6	12520	34	78	21	99	108	73	38-5/8	24	7-3/4	36	36
78	7-1/2	6-1/2	14430	24	78	21	99	114	79	41-15/16	24	8-1/2	36	36
84	8	7	16350	24	78	21	99	120	85	44-13/16	24	9	39	36

NOTE: Debris Guard Shall Be Installed On All End Sections In Accordance With Debris Guard Detail Shown On This Sheet.

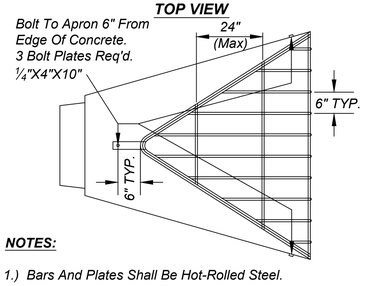
* See City Engineer For Flexible Pipe Requirements

PRECAST CONCRETE PIPE END SECTION
Scale: None

SIDE PROFILE



TOP VIEW



NOTES:

1.) Bars And Plates Shall Be Hot-Rolled Steel.

2.) Bars, Plates, And Pipe Shall Be Finished With Two Coats Of Aluminum Paint

3.) Bolts Shall Be Galvanized.

4.) No Rebar Through Pipes Shall Be Allowed.

5.) Debris Guard Shall Be Removable.

6.) Debris Guard Shall Be Smooth On All Surfaces And Free From Jagged Edges,Sharp Edges, And Protruding Bars.

TABLE 12A: DEBRIS GUARD SPECIFICATIONS

	APRON SIZE (INCHES)	V-BAR SIZE (INCHES)	NO. OF H-BARS REQ'D	H-BAR SIZE (INCHES)	BOLT DIA. (INCHES)	"A" DIM. (INCHES)
Arch Pipe Aprons	18	1/2	3	5/8	1/2	5
	24	5/8	4	3/4	1/2	7
	30	5/8	4	3/4	1/2	7-1/2
	36	3/4	4	1	1/2	10-1/2
	42	3/4	4	1	3/4	11
	48	3/4	4	1 ½ Pipe	3/4	12
	54	3/4	4	1 ½ Pipe	3/4	12
	60	3/4	5	1 ½ Pipe	3/4	14
	72	3/4	5	1 ½ Pipe	3/4	14
	84	3/4	6	1 ½ Pipe	3/4	15
Round Pipe Aprons	12	1/2	3	5/8	1/2	4
	15	1/2	3	5/8	1/2	4-1/2
	18	1/2	4	5/8	1/2	4-1/2
	21	1/2	4	5/8	1/2	5
	24	5/8	4	3/4	1/2	5
	27	5/8	4	3/4	1/2	5-1/2
	30	5/8	4	3/4	1/2	5-1/2
	36	3/4	4	1	3/4	8
	42	3/4	4	1	3/4	8
	48	3/4	5	1	3/4	8
	54	3/4	5	1 ½ Pipe	3/4	8
	60	3/4	5	1 ½ Pipe	3/4	8
	66	3/4	6	1 ½ Pipe	3/4	8
	72	3/4	6	1 ½ Pipe	3/4	9
	84	3/4	7	1 ½ Pipe	3/4	10
	90	3/4	7	1 ½ Pipe	3/4	14

DEBRIS GUARD FOR END SECTIONS
Scale: None

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

STORM SEWER AND DRAINAGE DETAILS AND NOTES

GENERAL NOTES

1.) Type J, K, L, M And N Manholes As Detailed Herein Require A Certain Minimum Depth. In Cases Where The Depth Of The Storm Sewer Is Not Sufficient To Meet The Minimum Depth As Required By The Detail, "F" Diameter Manhole Section May Be Used Throughout The Depth Of The Manhole.

2.) Manholes Shall Conform To ASTM C-478. Joints Shall Conform To ASTM C-443. The Use Of Cast-In-Place Concrete Structures Shall Require The Prior Written Approval Of The City Engineer. Regardless Of Type Of Casting Used, The Casting Shall Be Centered Over The Manhole Steps.

3.) Manhole Steps Shall Be Neenah R-1981-J, M.A. Industries PS 1-PF, Or Equivalent As Approved By The City Engineer.

4.) All Structures And Castings Shall Be Specified Based On Surface Conditions In Accordance With Table 14 On This Sheet.

5.) Castings For All Storm Structures Shall Be Stamped With Lettering As Shown In The Structure And Castings Specifications Detail On This Sheet.

6.) Castings Shall Not Be Buried And Shall Be Flush With The Adjacent Finished Grade. Castings Which Are Surrounded By Asphalt Or Concrete Shall Be Constructed Within A Tolerance Of ± 0.1' Of The Designed Elevation. All Other Castings Shall Be Constructed Within A Tolerance Of ± 0.2' Of The Designed Elevation.

7.) The Contractor Shall Remove Soils Under A Precast Bottom And Replace With 6 Inches Of Compacted INDOT #8 Stone.

8.) For Type C Manholes, The Base And First Riser Section Of The Precast Concrete Manhole Shall Be Integrally Cast As One Complete Unit.

9.) Final Adjustment In Elevation Of The Frame, Cover, Or Casting Shall Be Accomplished By The Use Of A 4 Inch Minimum And 12 Inch Maximum Thickness Adjusting Ring Or Collar. Brick Or Block Shall Not Be Used In The Construction Of A Structure Or To Adjust The Elevation Of Frame Or Casting.

10.) All Structures Shall Have A Minimum Of 4" Allowed For Riser Rings Or Adjustment.

11.) The Minimum Pipe Diameter For Storm Sewer In Public Right-Of-Way Is 12".

12.) Manholes Shall Be Installed At Distances Not Greater Than 400 Feet. For Pipes 36 Inches Or Larger, Greater Distances Between Manholes May Be Used With Written Approval Of The City Engineer.

13.) All Structure Castings Shall Be Surrounded By A ½" Expansion Joint When Placed In Asphalt Or Concrete. When Placed In Asphalt, Joint Shall Be Sealed In Accordance With INDOT Standard Specifications, Section 408. When Placed In Concrete, Joint Shall Be Sealed In Accordance With INDOT Standard Specifications, Sections 503 and 906.

14.) For A Series Of More Than One Inlets Connecting To A Trunkline, A Catch Basin With A 2 Feet Sump Shall Be Installed At The Structure Closest To The Trunkline.

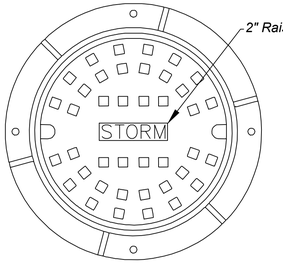
15.) Maximum Pipe Intrusion In A Structure Shall Be 3 Inches.

16.) Each Pipe Section Shall Be Marked With Date of Manufacture, Size, And Class Of Pipe, Specification Designation, Manufacturer, And Plant Identification.

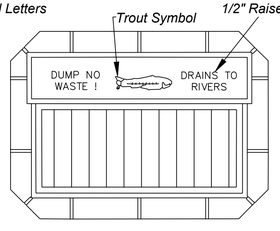
TABLE 14: STORM SEWER STRUCTURE & CASTING REQUIREMENTS

SURFACE DRAINAGE TYPE	COMPATIBLE STRUCTURE TYPES	*NEENAH CASTING #	*EJIW CASTING #
Type I Roll Curb & Gutter	Inlet & Catch Basin Type A	R-3501-T (R or L)	7495 (M1 or M2)
	Inlet & Catch Basin Type B	R-3501-TB	
	Manhole Type C, H, J, K, L, M, N	R-3501-L2	7495
Type II Combined Curb & Gutter Type V Curb	Inlet & Catch Basin Type A	R-3286-8V	7520 T1
	Inlet & Catch Basin Type B	R-3287-10V	7505 (M1 or M2)
	Inlet & Catch Basin Type C	R-3287-15V	7565 T1
	Manhole Type C, H, J, K, L, M, N	R-3286-8V	7520 T1
Type III Gutter Type IV Gutter	Inlet & Catch Basin Type A	R-3210-L	5344
	Inlet & Catch Basin Type B	R-3067-L	7034
	Inlet & Catch Basin Type C	R-3396	
	Manhole Type C, H, J, K, L, M, N	R-3238	5100
Open Pavement (No Curb)	Inlet & Catch Basin Type A	R-3402-E	
	Manhole Type C, H, J, K, L, M, N	R-2502-D	1022 M1
Swales/Grass/Unpaved Areas	Manhole Type C, H, J, K, L, M, N	R-4342	6489
No Surface Drainage	Manhole Type C, H, J, K, L, M, N	R-1772	1022-2 TYPE A

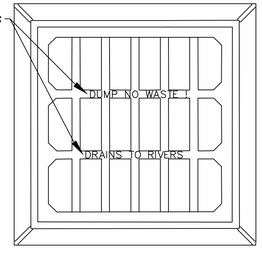
* Castings Other Than Neenah Or East Jordan Shall Be As Approved By The City Engineer.



LETTERING FIGURE 1
Applies To Solid Manhole Castings

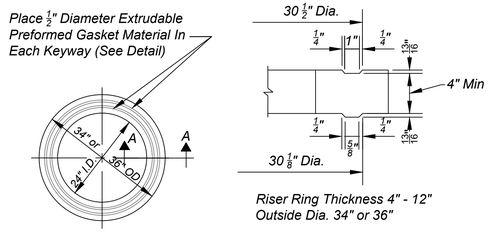


LETTERING FIGURE 2
Applies To Curb & Gutter Castings

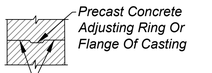


LETTERING FIGURE 3
Applies To Open Pavement And Unpaved Open Areas Castings

STORM STRUCTURE AND CASTING SPECIFICATIONS
Scale: None

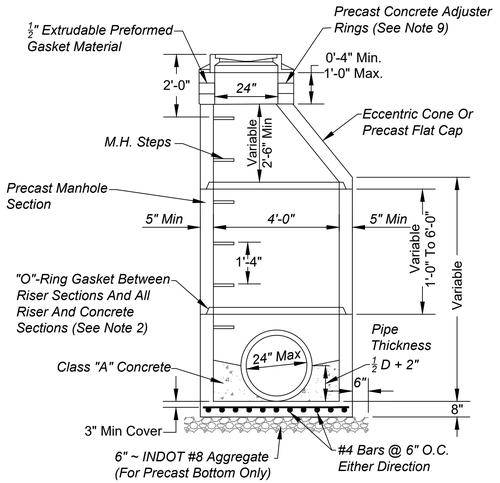


PLAN VIEW **SECTION A-A**



GASKET DETAIL

PRECAST ADJUSTING RING
Scale: None



MAXIMUM PIPE SIZE	
Pipe Entering / Pipe Exiting At 0° - 45° Bend	Pipe Entering / Pipe Exiting At 45° - 90° Bend
24"	21"

MANHOLE TYPE C
Scale: None

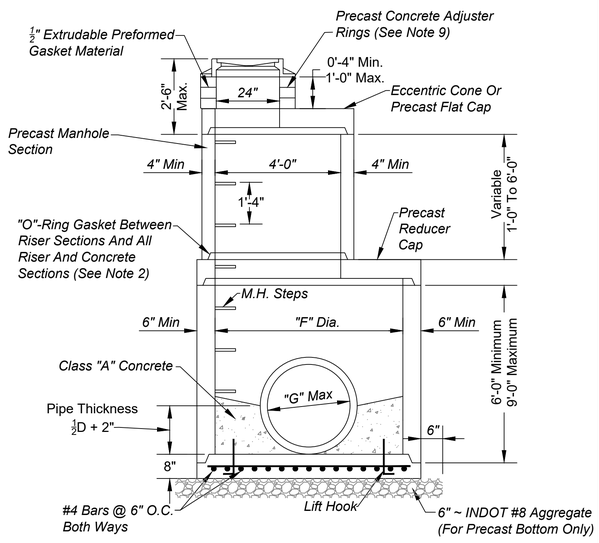
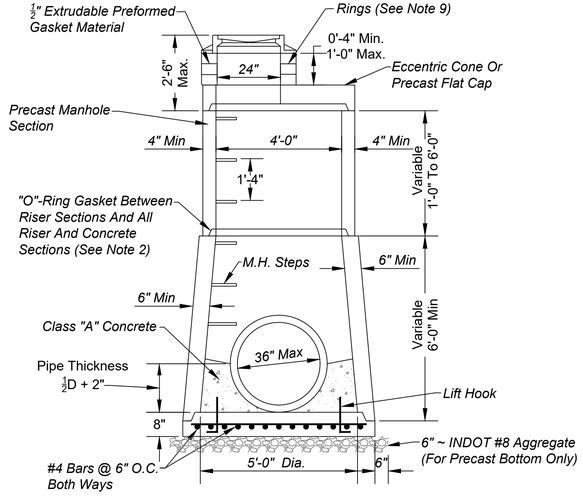


TABLE 15: DIMENSIONS FOR MANHOLE TYPES J,K,L,M & N

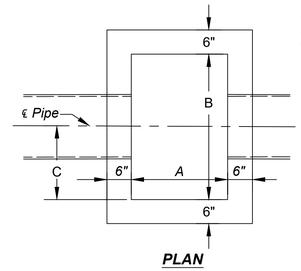
Manhole Type	Manhole Diameter "F"	MAXIMUM PIPE SIZE "G"	
		Pipe Entering / Pipe Exiting At 0° - 45° Bend	Pipe Entering / Pipe Exiting At 45° - 90° Bend
J	60"	36"	30"
K	72"	48"	36"
L	96"	54"	48"
M	102"	72"	66"
N	108"	84"	72"

MANHOLE TYPES J, K, L, M, & N
Scale: None

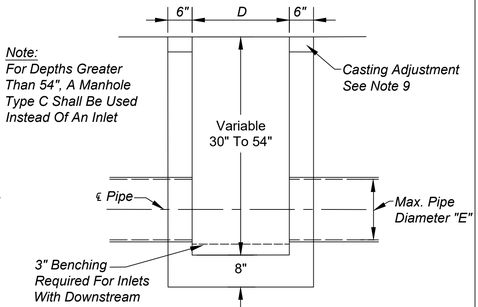


MAXIMUM PIPE SIZE	
Pipe Entering / Pipe Exiting At 0° - 45° Bend	Pipe Entering / Pipe Exiting At 45° - 90° Bend
36"	30"

MANHOLE TYPE H
Scale: None



PLAN



SECTION
(SUMP NOT SHOWN)

TABLE 16: INLET AND CATCH BASIN DIMENSIONS

STRUCTURE TYPE	A (in)	B (in)	C(in)	D (in)	E (in)	Sump (in)
Inlet Type A	24	24	12	24	18	None
Catch Basin Type A	24	24	12	24	18	24
Inlet Type B	24	36	18	24	24	None
Catch Basin Type B	24	36	18	24	24	24
Inlet Type C	30	46	23	30	30	None
Catch Basin Type C	30	46	23	30	30	24

INLETS AND CATCH BASINS - TYPES A, B, AND C
Scale: None

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

STORM SEWER STRUCTURES DETAILS AND NOTES

SHEET 10 OF 18

SANITARY SEWER GENERAL NOTES:

1.) Sanitary Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of The City Engineer And Wastewater Superintendent.

2.) The Contractor Is Responsible For Locating All Sanitary Mains And Laterals Prior To Construction. Any Mains Or Laterals Damaged During Construction Shall Be Repaired By The Contractor At His/Her Expense.

3.) The Contractor Shall Submit Information To The City Engineer Showing Conformance With These Specifications Upon Request.

4.) As-Built Drawings Shall Be Submitted To The City Engineer And Wastewater Superintendent. See Note 11 On Sheet 1.

5.) During Construction Of New Sanitary Sewer Lines, The Contractor Shall Install A Watertight Plug In The End Of The Existing Sewer That Is Being Connected To. This Plug Shall Remain In Place And Be Checked For Water Tightness Daily Until The Entire Project Is Complete And Testing Has Been Performed. A Letter From The Wastewater Superintendent Must Be Written, Giving Permission To Remove The Plug Before The Plug Can Be Removed By The Contractor.

SANITARY SEWER POLYVINYL CHLORIDE (P.V.C.) PIPE:

1.) P.V.C. Pipe Diameters Of 6 Inches Through 15 Inches Shall Meet Or Exceed All The Requirements Of ASTM D-3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D-1784 For A Summarization Of Cell Class Properties. P.V.C. Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F-679, And Shall Have A Minimum Cell Classification Of 12454.

2.) P.V.C. Pipe Shall Conform To The Following Specifications Based On Pipe Diameter And Depth Of Cover:

PIPE DIAMETER	DEPTH OF FILL OVER PIPE	PIPE SPECS	ASTM STANDARD
6" - 15"	Less Than 15 Feet	SDR-35 Type PSM	D-3034
6" - 15"	15 Feet Or Greater	SDR-26 Type PSM	D-3034
18" or Greater	Less Than 15 Feet	PS 46	F-679
18" or Greater	15 Feet Or Greater	PS 115	F-679

P.V.C. SDR-35 And PS-46 Pipe Shall Have A Minimum Pipe Stiffness Of 46 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412. P.V.C. SDR-26 And PS-115 Pipe Shall Have A Minimum Pipe Stiffness Of 115 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412.

3.) Pipe Joints Shall Have A Bell Wall, Gasket Groove And Spigot Which Is Integral With The Pipe. The Assembly Of Joints Shall Be In Accordance With Pipe Manufacturers' Recommendations And ASTM D-3212. No Solvent Cement Joints Shall Be Allowed.

4.) Gasket Material Shall Meet Or Exceed All Requirements Of ASTM D3212-07, Standard Specification For Joints For Drain And Sewer Plastic Pipes Using Flexible Elastometric Seals.

5.) Pipe Fittings Shall Be SDR-26 Manufactured Fittings Made Of P.V.C. Plastic Having A Cell Classification Of 12454 As Defined In ASTM D-1784. Saddle Connections Shall NOT Be Allowed For New Construction.

6.) Each Pipe Section Shall Be Marked With The Name Of Manufacturer, Trademark Or Tradename, Nominal Pipe Size, Production/Extrusion Code, Material And Cell Class Designation, And ASTM Number.

7.) Lateral Connections Shall Be Made With A SDR-26 Or PS 115 "Tee-Wye" Fitting Only.

8.) Sanitary Sewer Pipe Shall Have A Minimum Horizontal Separation Of 10 Feet From Storm Sewer Pipe Or Water Main Pipe. All Pipe Crossings Shall Have A Minimum Vertical Separation Of 1.5 Feet. Dimensions Are Measured From The Outside Of Pipe To Outside Of Pipe.

9.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.

SANITARY SEWER REINFORCED CONCRETE PIPE:

1.) Reinforced Concrete Pipe For Use As Sanitary Sewers Shall Be Class III, IV, Or V As Specified In ASTM C-76. Lift Holes Shall Not Be Permitted.

2.) Each Section Of Reinforced Concrete Pipe Shall Be Vacuum Tested By The Manufacturer Prior To Delivery To The Job Site. Only Pipe Sections Passing This Test Shall Be Marked As "Vacuum Tested".Vacuum Test Requirements Are As Follows:

a. Each Section Of Pipe Shall Be Tested By Bringing The Internal Pressure Within The Pipe To 3.5 PSIG Below Atmospheric Pressure And The Pressure Must Not Drop To Less Than 2.5 PSIG Below Atmospheric Pressure Within The Time Limitation As Determined By The Following:

$$T = \frac{0.022(D^2)(L)}{2}$$

Where: T = Time In Seconds
D = Diameter Of Pipe In Inches
L = Length Of Pipe In Feet

b. Any Pipe Section Failing To Meet This Test Shall Not Be Permitted For Use As Sanitary Sewer In The City Of Shelbyville.

3.) Lateral Connections Shall Be Made With Insert-A-Tee Connector Or City Approved Equal.

4.) Each Pipe Section Shall Be Marked With The Date Of Manufacture, Size And Class Of Pipe, Specification Designation, Manufacturer And Plant Identification.

5.) Pipe Shall Be Furnished With A Bell Or Groove On One End Of A Unit Of Pipe And A Spigot Or Tongue On The Adjacent End Of The Adjoining Pipe. All Joints Shall Have A Groove On The Spigot For Placement Of A Rubber "O"-Ring Or Profile Gasket In Accordance With ASTM C-443. The Gasket Shall Be A Continuous Ring Which Fits Snugly Into The Annular Space Between The Overlapping Surfaces Of the Assembled Pipe Joint To Form A Flexible Watertight Joint Under All Conditions Of Service. Joint Shall Be Adequate For Hydrostatic Pressures Up To 13 Pounds Per Square Inch (30 Feet) Without Leakage.

SANITARY SEWER LEAKAGE TESTING:

1.) Leakage Testing Shall Be Performed For All Mainline Segments. Testing For Leakage Shall Commence After Backfill Has Been In Place For 30 Days. The City Engineer And Wastewater Superintendent Shall Be Given 24 Hour Written Notice Of The Required Leakage Testing Procedure To Be Performed By The Contractor. Low Pressure Air Shall Be Slowly Introduced Into The Sealed Line Until The Internal Air Pressure Reaches 5 PSIG Plus The Groundwater Head Divided By 2.31 (Maximum Test Pressure Is 9 PSIG).

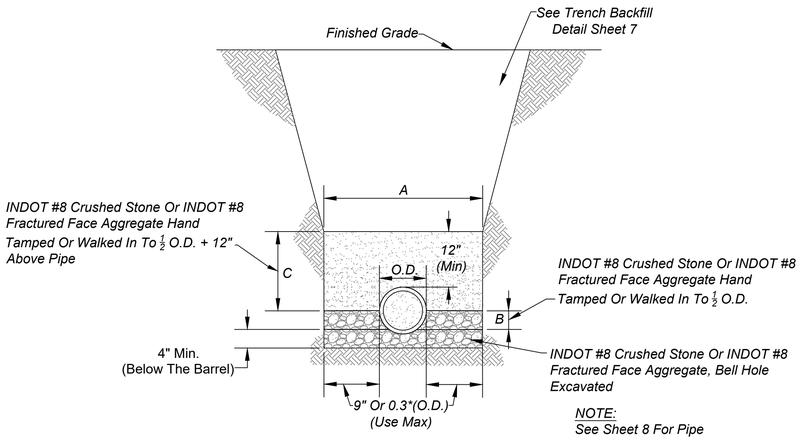
2.) At A Stable Internal Air Pressure Within 0.5 PSIG Of The Initial Internal Air Pressure, Timing Shall Commence With A Stopwatch Or Similar Device Of 99.8 Percent Accuracy. Timing Shall End When The Internal Air Pressure Drops 1 PSIG Below The Stable Internal Air Pressure.

3.) The Line Shall Be Accepted If The Time Shown In Table 17 For The Designated Pipe Size And Length Elapses Before The Air Pressure Drops 1 PSIG Below The Stable Internal Air Pressure At Which Time The Test Can Be Discontinued For The Accepted Line.

4.) If A Leak Must Be Repaired, Then The Entire Mainline Segment Shall Be Retested For Leakage. If Contractor Excavates Pipe For The Purpose Of Repairing A Leak, Then The Entire Mainline Segment Shall Be Retested For Both Leakage And Deflection.

5.) The Design Engineer Or His/Her Representative Shall Attest That Each Mainline Segment Was Tested For Leakage, With Successful Results, In Compliance With Stated Leakage Testing Requirements.

6.) Contractor Shall Bear All Testing Costs.



PVC PIPE BEDDING DETAIL

Scale: None

SANITARY SEWER DEFLECTION TESTING:

1.) An In-Place Deflection Test Shall Be Performed On All Mainline Flexible Pipe To Be Used For The Purposes Of Conveying Sanitary Sewage. The City Engineer And Wastewater Superintendent Shall Be Given A Minimum 24 Hour Written Notice Of Deflection Testing Procedure To Be Performed By The Contractor. A Nine-Point "Go-No-Go" Mandrel Shall Be Used For The Deflection Test. A Proving Ring Shall Be Provided For Each Mandrel. The "Go-No-Go" Mandrel Shall Be Manually Pulled Without The Use Of Any Mechanical Devices. An Allowable Deflection Of 5% Of Inside Pipe Diameter Will Be Acceptable After All Backfilling Has Been In Place For 30 Days.

2.) All Pipe Exceeding The Allowable Deflection Shall Be Replaced Or Rerounded. The Replaced Or Rerounded Section Shall Be Retested For Leakage And Deflection 30 Days After Replacement Or Rerounding.

3.) The Design Engineer Or His/Her Representative Shall Attest That Each Mainline Segment Was Tested for Deflection, With Successful Results, In Compliance With Stated Deflection Testing Requirements.

4.) Contractor Shall Bear All Testing Costs.

SANITARY SEWER TELEVISING AND AS-BUILT DRAWINGS:

1.) Closed Circuit Television (CCTV) Inspection Shall Be Performed On All Pipe Installed Within The City Of Shelbyville For The Purposes Of Conveying Sanitary Sewage. Televising Shall Be Performed After Deflection And Leakage Testing Are Completed.

2.) The Contractor Or Developer Responsible For Installing The Sanitary Sewer Pipe Shall Employ/Hire The Contractor Responsible For The Television Inspection Services. The Contractor Or Developer Shall Contact The City Engineer Or Wastewater Superintendent To Schedule The CCTV Inspection.

3.) All Pipe Segments Shall Be Thoroughly Cleaned Before The Start Of The CCTV Inspection.

4.) A Camera Equipped With Remote Control Devices To Adjust The Light Intensity And 1,000 Linear Feet Of Sewer Cable Shall Be Provided. The Camera Shall Transmit A Continuous Image To The Television Monitor As It Is Being Pulled Through The Pipe. The Image Shall Be Clear Enough To Enable The City Of Shelbyville Representative And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The Video With Linear Footage And Project Number. An Audio Voice-Over Shall Be Made During The Inspection Identifying Any Problems.

5.) The Contractor Shall Bear All Costs Associated With Televising, Line Cleaning And Debris Removal & Disposal.

6.) If Any Pipe And/Or Joint Is Found To Be Faulty Or Leaking, Regardless Of The Results Of Leakage And Deflection Testing, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The City Of Shelbyville. All Repaired Or Replaced Pipe Sections Shall Be Retelevised And Retested.

7.) The Digital Copies Of The Entire Sewer Line, Reproduction Map Indicating The Numbers Of All Pipes That Have Been Televised, And As-Built Drawings Shall Be Submitted To The City Engineer And Wastewater Superintendent For Their Records.

MANHOLE TESTING REQUIREMENTS:

1.) After Manhole Assembly And Prior To Backfilling, A City Representative Will Visually Inspect Each Structure For Leakage Or Evidence Thereof. Contractor Shall Contact The City Engineer Or Wastewater Superintendent At Least 24 Hours Prior To Backfilling.

2.) All Sanitary Manholes Shall Be Vacuum Tested In Accordance With ASTM C-1244-93 (Latest Revision).

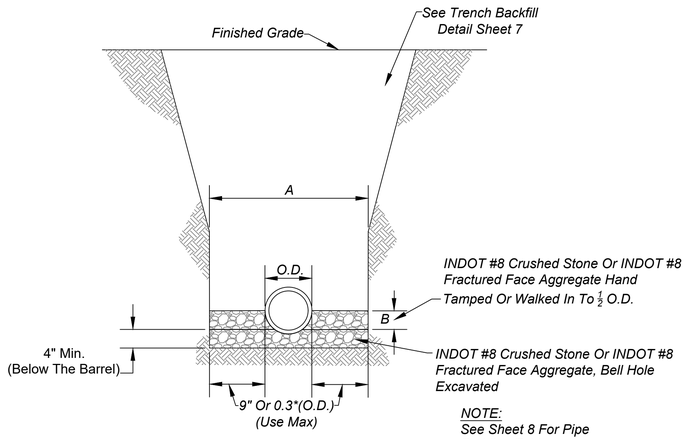
3.) Test Shall Commence By Drawing A Vacuum Of 5 Psig. Timing Shall Commence With A Stopwatch Or Similar Device Of 99.8% Accuracy Once The Vacuum Pressure Reaches 5 Psig. Timing Shall End When The Vacuum Pressure Drops To 4.5 Psig.

4.) If Any Manhole Shows Leakage Or Signs Thereof, The Manhole Shall Be Repaired To The Satisfaction Of The City Of Shelbyville And Retested.

5.) The Manhole Shall Be Accepted If The Time Shown In Table 18 For The Designated Manhole Size And Depth Elapses Before The Vacuum Pressure Drops Below 4.5 Psig, At Which Time The Test Can Be Discontinued For The Accepted Manhole.

6.) All Vacuum Testing And Equipment Shall Be Provided By The Contractor. Any Repairs Shall Be The Responsibility Of The Contractor.

7.) The Design Engineer Or His/Her Representative Shall Attest That All Manholes Were Vacuum Tested, With Successful Results, In Accordance With ASTM C-1244-93. A City Representative Shall Be Present Onsite During Each Vacuum Test.



RCP BEDDING DETAIL

Scale: None

TABLE 17: SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015

1 Pipe Diameter (In.)	2 Minimum Time (Min:Sec)	3 Length For Minimum Time (Ft)	4 Time For Longer Length (Sec.)	Specification Time For Length (L) Shown (Min:Sec)							
				100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	350 Ft.	400 Ft.	450 Ft.
6	5:40	398	0.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

NOTE:

For More Efficient Testing Of Long Test Sections And/Or Sections Of Larger Diameter Pipes, A Timed Pressure Drop Of 0.5 PSIG May Be Used In Lieu Of The 1.0 PSIG Timed Pressure Drop. If A 0.5 PSIG Pressure Drop Is Used, Required Test Time Shall Be Exactly Half As Long As Those Shown Above.

TABLE 18: SPECIFICATION TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP FROM 5PSIG TO 4.5PSIG FOR SIZE AND DEPTH OF MANHOLES INDICATED.

MANHOLE VACUUM TEST TIMES TABLE							
Depth Of Manhole (Feet)	Diameter Of Manhole						
	48"	60"	72"	84"	96"	108"	120"
	Minimum Time (Seconds)						
8	20	26	33	39	45	51	57
10	25	33	41	48	56	64	72
12	30	39	49	58	67	77	86
14	35	46	57	68	79	89	100
16	40	52	67	77	90	102	114
18	45	59	73	87	101	115	129
20	50	65	81	96	112	127	143
22	55	72	89	106	123	140	157
24	59	78	97	116	134	153	171
26	64	85	105	125	145	166	186
28	69	91	113	135	157	178	200
30	74	98	121	144	168	191	214

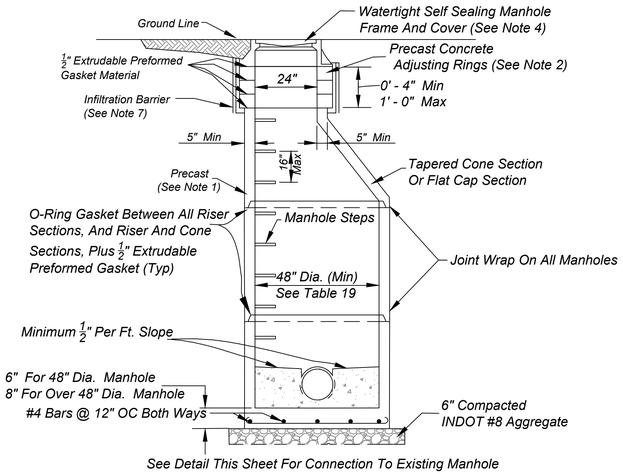
REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

SANITARY SEWER BEDDING AND PIPE DETAILS AND NOTES



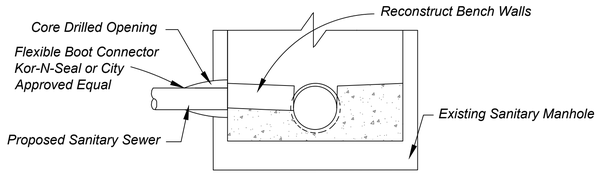
TYPICAL MANHOLE TYPE A

Scale: None

TABLE 19: SANITARY MANHOLE SIZES

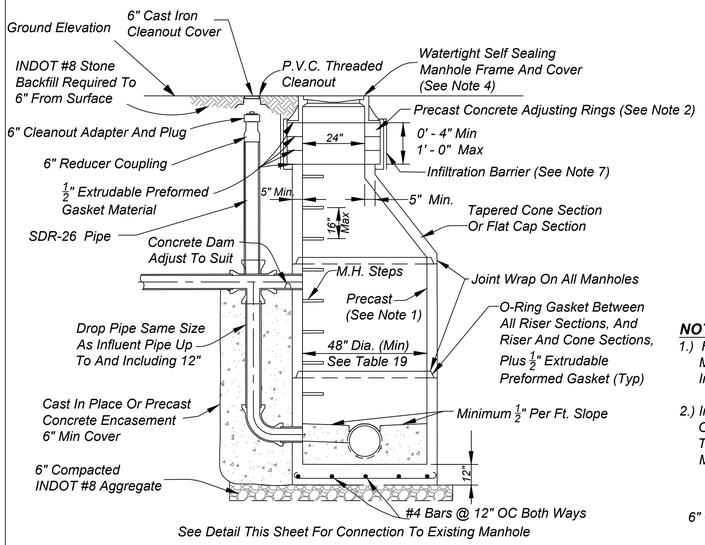
Pipe Size	Minimum Manhole Diameter	
	Pipe Entering / Pipe Exiting At 0" - 45" Bend	Pipe Entering / Pipe Exiting At 45" - 90" Bend
8" - 21"	48"	48"
24"	48"	60"
27" - 30"	60"	60"
33" - 36"	60" *	72"

* 72" With A-Lock Connector



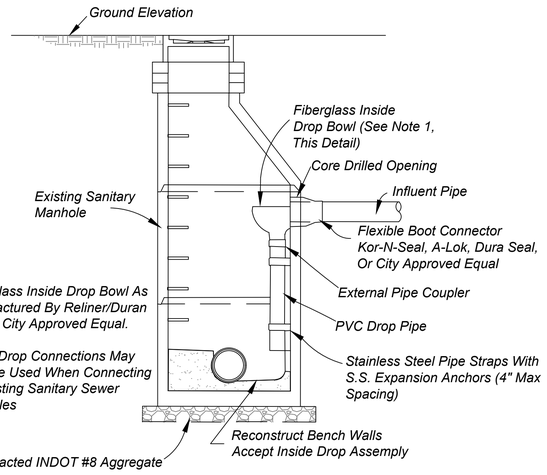
EXISTING MANHOLE CONNECTION DETAIL

Scale: 1/2" = 1'-0"



TYPICAL MANHOLE TYPE B (DROP MANHOLE)

Scale: None



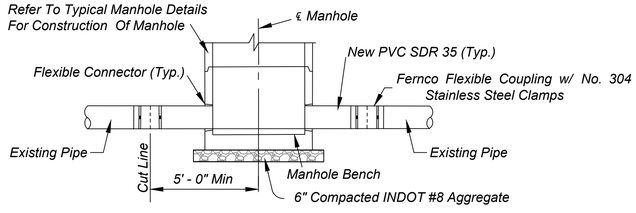
NOTES

1.) Fiberglass Inside Drop Bowl As Manufactured By Reliner/Duran Inc. Or City Approved Equal.

2.) Inside Drop Connections May Only Be Used When Connecting To Existing Sanitary Sewer Manholes

MODIFIED TYPE B INTERIOR DROP MANHOLE

Scale: None



NOTE: Cut Existing Pipe(s) On The Side Of The Proposed Manholes. Remove Existing Pipe(s) Section And Install Manhole Base. Proceed With Typical Connections And Manhole Constructions.

SPECIAL MANHOLE CONNECTION DETAIL TO EXISTING PIPE

Scale: None

MANHOLES:

1.) Precast Concrete Manholes Shall Conform To ASTM C-478, With Rubber Type Gaskets Equal To ASTM C-443. Monolithic Cast-In-Place Manholes Shall Only Be Used With The Prior Written Approval Of The City. The Base And First Riser Section Of The Precast Concrete Manhole Shall Be Integrally Cast As One Complete Unit. Precast Concrete Cones Shall Be Of The Eccentric Cone Type. No "See Through" Lift Holes Shall Be Allowed On Precast Concrete Manholes 48 Inches In Diameter Or Less. In Addition To The Rubber Type Gaskets All Joints Shall Receive A ½ Inch Diameter Nonasphaltic Mastic (Kent-Seal Or City Approved Equal) Conforming To AASHTO M-198 And Federal Specifications SS-S-210A. Pipe Connection To Manhole Shall Be Watertight Flexible Connector (KOR-N-SEAL, A-LOK, Dura-Seal) Or City Approved Equal.

2.) Where One Solid Riser Or Barrel Section Cannot Be Used, Final Adjustment In Elevation Of The Frame And Cover Shall Be Accomplished By The Use Of A 4 Inch Minimum Thickness Adjusting Ring As Detailed Herein To A Maximum Combined Thickness Of 12 Inches. Brick Or Block Shall NOT Be Used In The Construction Of A Manhole Or To Adjust The Elevation Of The Frame And Cover.

3.) Manhole Steps Shall Be Neenah No. R-1981-J, East Jordan Iron Works No. 8512, M.A. Industries No. PS 1-PF Or City Approved Equal.

4.) Manhole Frame And Cover Shall Be Self-Sealing Neenah R-1772-B, East Jordan 1022-2-A Or City Approved Equal. When Watertight Frame And Cover Is Required By The City Or Developer, Neenah R-1916-C, East Jordan 1022-2-WT Or City Approved Equal Shall Be Provided. All Covers Shall Be Stamped "SANITARY SEWER" With 2" Raised Letters.

5.) The Lowest Elevation To Receive Gravity Sanitary Service Must Be One (1) Foot Above The Top Of Manhole Casting Elevation Of Either The First Upstream Or Downstream Manhole On The Public Sewer To Which Connection Is To Be Made. Those Portions Of The Building Not Meeting The Stated Gravity Sanitary Service Requirement Shall Be Provided And Maintained By The Property Owner With A Grinder Pump System Or City Approved Equal Discharging To The Gravity Building Connection Outside Of The Public Right-Of-Way.

6.) See Sheet 11 For Manhole Vacuum Testing Requirements.

7.) Contractor Shall Install An External Rubber Sleeve Sealing System Wrapped Over The Flange Of The Manhole Frame To 2 Inches Below The Bottom Of The Lowest Adjusting Ring. The External Rubber Sealing Sleeve Shall Have A Minimum Thickness Of 60 Mils And Meet The Requirements Of ASTM C-923, ASTM C-443 And ASTM F-477. The Rubber Sleeve Shall Be Infi-Shield External Manhole Seal, Or As Approved By The City Of Shelbyville.

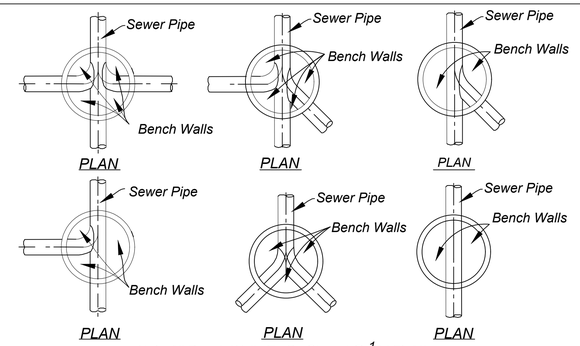
8.) Apply MasterSeal 614 Bituminous Coating, Or City Approved Equivalent, On The External Face Of The Entire Manhole. Apply Non-Shrink Mortar Or Epoxy Grout On The Internal Face At All Manhole Section Joints.

9.) Manholes Shall Be Installed At Distances Not Greater Than 400 Feet.

10.) Castings Shall Not Be Buried And Shall Be Flush With The Adjacent Finished Grade. Castings Which Are Surrounded By Asphalt Or Concrete Shall Be Constructed Within A Tolerance Of ± 0.1' Of The Designed Elevation. All Other Castings Shall Be Constructed Within A Tolerance Of ± 0.2' Of The Designed Elevation.

11.) There Shall Be A Minimum Of 0.1 Feet Of Fall Between The Upstream Invert(s) And The Downstream Invert In The Structure For Pipes Of The Same Diameter. For Pipes Of Differing Diameters, The Crown Of The Upstream Pipe Shall Match The Crown Of The Downstream Pipe. An Outside Drop Manhole Is Required For Upstream Inverts Which Are At Least Two Feet (2') Higher Than The Downstream Invert.

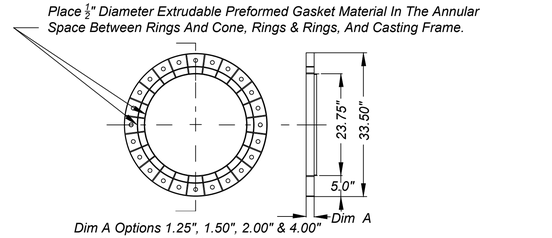
12.) All Manholes Receiving Discharge From A Forcemain Shall Be Coated With A City Approved Epoxy Or Polyurethane Coating Such As Culy Microsilica Cement Mortar And Epoxy Corrosion Barrier Or Approved Equal.



Note All Bench Walls To Be Sloped @ ½" / Ft. Min.

BENCH WALL DETAIL

Scale: None



Dim A Options 1.25", 1.50", 2.00" & 4.00" Or Sloped To Match Grade

NOTES:

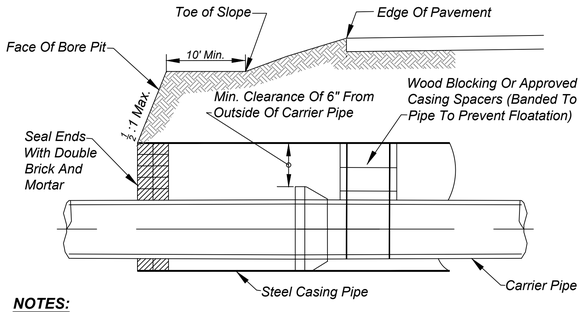
1.) HDPE Rings Shall Be Injection Molded - Recycled HDPE As Manufactured By LADTECH, Inc., Or Approved Equal, And Installed In Accordance With The Manufacturer's Recommendations.

2.) Wastewater Superintendent May Require Concrete Adjusting Rings For Manholes Subject To High Traffic Loading.

3.) Alternate Adjusting Rings May Be Submitted To The Shelbyville Wastewater Superintendent For Approval.

HDPE ADJUSTING RING

Scale: None



NOTES:

1.) Certification Is Limited To Those Standards And Guidelines Outlined In This Detail. Boring(s) Is Subject To Construction Drawings, Shop Drawings, And Design Engineer's Certification. Bored Or Jacked Crossings Require Intimate Knowledge Of Site Conditions. Therefore, Construction Is Subject To Certified Special Provisions Prepared By The Design Engineer.

2.) Design Engineer Is Responsible To Determine The Appropriate Size, Thickness, And Joint Strength For Steel Casing Pipes.

3.) Carrier Pipes Shall Be In Accordance With Shelbyville Standards.

4.) Bore Pits Shall Be Designed To Maximize Safety In Accordance With All Applicable State And Federal Regulations.

ROADWAY BORING DETAILS

Scale: None

Rev. No.	REVISIONS Description	Date
1	Entire Set	07/26/2011
2	Added Joint Wrap Note For Manholes	01/10/2014
3	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

SANITARY SEWER DETAILS AND NOTES

SHEET 12 OF 18

SANITARY SEWER LATERAL PIPE AND FITTINGS

1.) Service Laterals Shall Be Gasketed PVC Pipe From The Sewer Main To The Building. Laterals Less Than 15 Feet Deep Shall Be SDR-35. Laterals Greater Than 15 Feet Deep Shall Be SDR-26. All Laterals Shall Be Inspected By The Shelbyville Wastewater Department Prior To Backfill.

2.) Joints Shall Be Flexible Gasket Push-On-Compression Type Conforming To ASTM D-3212 And ASTM F-477. No Solvent Cement Joints Shall Be Allowed.

3.) Lateral Size Shall Be A Minimum Of 6 Inches In Diameter Between Mainline Sewer And Clean-Out Closest To Building. Lateral Size Shall Be A Minimum Of 4 Inches In Diameter Between Building And First Downstream Clean-Out.

4.) A Minimum Of One Clean-Out Shall Be Installed For Each Lateral. Where The Length Of A Lateral Exceeds 100 Feet, Then One Clean-Out Shall Be Installed For Every 100 Feet Of Lateral Length. In Any Event, A Clean-Out Shall Be Located No Farther Than 5 Feet From The Building.

5.) In Accordance With City Ordinance §50.048, Approval Consideration Of A Lateral Connection Requires The Owner Of The Residence Or Business To Provide The Following Information On A Legible Diagram: Name Of Property Owner, Address, Telephone Numbers Of Both Property Owner And Contractor, Depth And Position Of Lateral Between Mainline Sewer And The Building, Location Of Connection Point Referenced To Any Permanent Object, Length And Size Of Pipe To Be Installed, Pipe Material, Slope Of Pipe, Bedding Type, Pipe Contractor, And Method Of Connection.

6.) Contractor Shall, When Curbs Are Available, Engrave A 3-Inch High By $\frac{1}{8}$ -Inch Deep "S" On The Curb Directly Above Each Service Lateral. Where Curbs Are Not Available, Contractor Shall Notch The Sidewalk Directly Above Each Service Lateral. If No Curb Or Sidewalk Is Present, A Concrete Monument Shall Mark The Lateral Location.

7.) A Backflow Prevention Valve May Be Installed By The Property Owner If Approved By The Wastewater Superintendent. Property Owner Shall Be Solely Responsible For Installation And Maintenance. The Backwater Prevention Valve Shall Be Installed On The Owner's Property Outside City Right-Of-Way. The Backflow Prevention Valve Shall Be Housed In A Minimum 18 Inch Diameter Meter Pit, Readily Accessible At All Times, And Located A Maximum 3 Feet Deep. The City May Require A Backflow Prevention Valve If The Finished Floor Elevation Of A Structure Is Below The Top Of Casting Elevations Of The Immediate Upstream Or Downstream Sanitary Manhole.

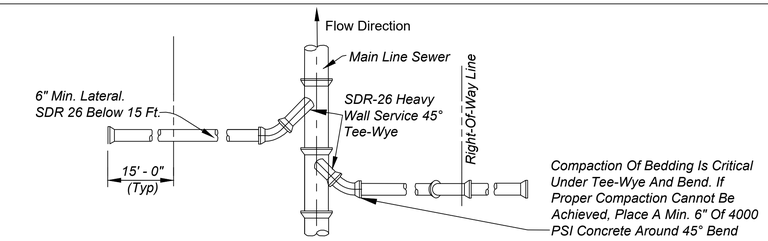
8.) The Approval Of A New Sanitary Sewer Service Lateral Or The Modification Of An Existing Service Lateral Requires The Procurement Of A Sewer Connection Permit From The Shelbyville Wastewater Department.

9.) Lateral Abandonment Requires Approval From The Shelbyville Wastewater Department. A Watertight Cap Or Seal With Fernco Type Fittings Shall Be Installed On The Abandoned Lateral In The Vicinity Of The Sidewalk Or Curb.

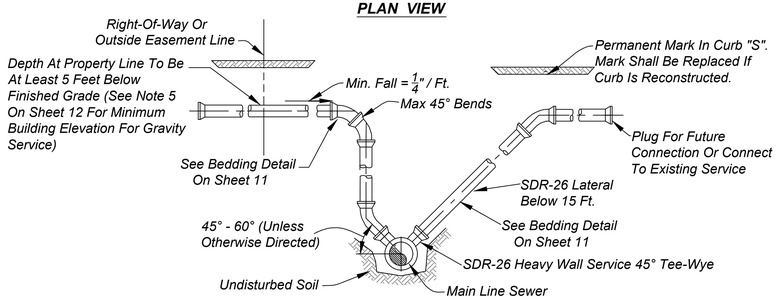
10.) In Accordance With ASTM D-3034, The Outside Of Each Pipe Section Shall Be Legibly Marked With The Date Of Manufacture, Class Of Pipe, Specification Designation, Name Or Trademark Of Manufacturer And Identification Of Plant/Location. Pipe Shall Be Rotated In Such A Manner That The Markings Are Easily Readable During Sanitary Lateral Inspection.

11.) In New Development, The Sanitary Laterals Shall Be Extended To The BSL When The Sanitary Main Is Being Installed.

12.) Unless Approved By The Wastewater Superintendent, Laterals Should Connect To The Main Directly In Front Of The Lot, Behind The Lot, Or Across The Street, And Not In Front Of Adjacent Lots, The Intent Being, One Lateral And One Tap Per Residential Lot.



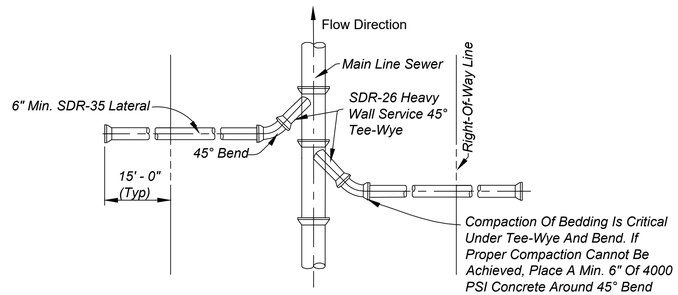
PLAN VIEW



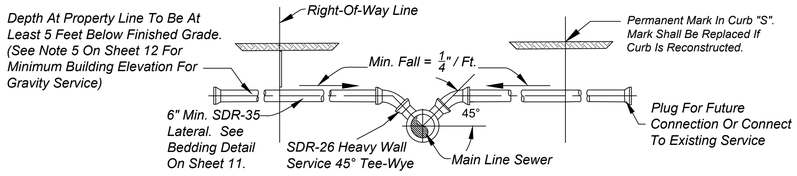
ELEVATION VIEW

SERVICE CONNECTION FOR DEEP SEWERS (15' DEEP AND OVER)

Scale: None



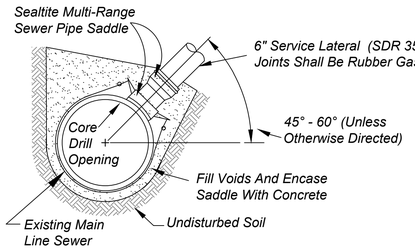
PLAN VIEW



ELEVATION VIEW

SERVICE CONNECTION FOR SHALLOW SEWERS (LESS THAN 15' DEPTH)

Scale: None

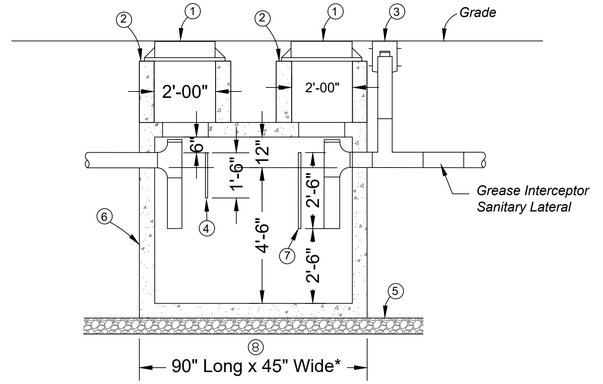


SANITARY LATERAL SADDLE TAP

Scale: None

1.) Sewer Pipe Saddle Shall Be General Engineering Company Sealtite Type "U" For Laterals Connecting To Existing Mainline Sanitary Sewer With A 6.275" OD. TO 30.00" OD.

2.) Sewer Pipe Saddle Shall Be General Engineering Company Sealtite Type "C" For Laterals Connecting To Existing Mainline Sanitary Sewer Over 30.00" OD.



NOTES:

1. Cast Iron Manhole Frame And Cover Neenah R-6461-FH Or R-6462-FH Or Approved Equal
2. 24" Diameter Concrete Pipe Riser
3. Cast Iron Clean-Out And Cover
4. Precast Concrete Inlet Baffle
5. 6" Compacted INDOT #8 Aggregate
6. Precast Concrete Structure Designed For Vehicle Traffic. (Structure Shall Be Approved By The City And Shall Have 6" Minimum Wall Thickness)
7. Precast Concrete Outlet Baffle
8. Length And Width Dimensions Shown Correspond To A 1,000 Gallon Capacity Grease Trap. Larger Dimensions May Be Required. See Site Plan For Actual Size. Additional Vertical Depth May Also Be Required.
9. All New Commercial Or Industrial Entities, Which Either Generate And/Or Waste Oil, Grease Or Other Similar Substances Thereto, Shall Construct A 1,000-Gallon (Minimum) Grease Trap. The Design Engineer Shall Submit Detailed Calculations For Size Justification Of Said Trap. Calculations Shall Be Accompanied With References Specifically Denoting Origin Of Sizing/Calculation Method.
10. Toilets, Urinals, Sinks, And Other Non-Grease Laden Wastes Shall Not Waste Through The Grease Interceptor. All Other Waste Shall Enter Through The Grease Interceptor, Through The Inlet Pipe Only.
11. Grease Interceptor Shall Be Installed Downstream Of All Kitchen Drains Or Grease-Laden Equipment Drains, And In A Location Readily And Easily Accessible For Cleaning And Inspection Purposes, In Accordance With City Ordinances §50.048 (I) And §50.052 (D)(1).
12. The Oil/Grease Trap Shall Be Located Outside The Building And At A Distance Far Enough To Allow Soluble Grease/Oil To Become Insoluble. Water Temperatures Shall Be Less Than 120° F Prior To Entering The Grease Interceptor. Greater Distances May Be Required By The City.
13. Each Building Or Facility Shall Have A Separate Individual Grease Interceptor.
14. All Property Owners Or Utility Users With Grease Interceptors Shall Have Sole Responsibility For The Installation And Maintenance Of The Grease Interceptor. Owners Or Utility Users Shall Be Responsible For The Proper Removal And Disposal, By Appropriate And Lawful Means, Of The Captured Material In The Interceptors.
15. The City Of Shelbyville Reserves The Right To Inspect All Grease Interceptors That Are Located Upstream Of City Owned Sewers. Any Person, Business, Industry, Or Owner That Is Found To Be Responsible For Discharging Fats, Oils, Grease, Or Other Similar Substances Thereto Shall Be Responsible For The Cost Of Remediating Any And All Issues Created By Such Discharge.

FOOD GRADE GREASE INTERCEPTOR DETAIL

Scale: None

NOTE:

When An Oil Separator Is Required For Garages And Other Industrial Uses, The Oil Separator Must Be Approved By The WRRF Superintendent.

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020
3	Note About Extending Laterals	05/11/2021

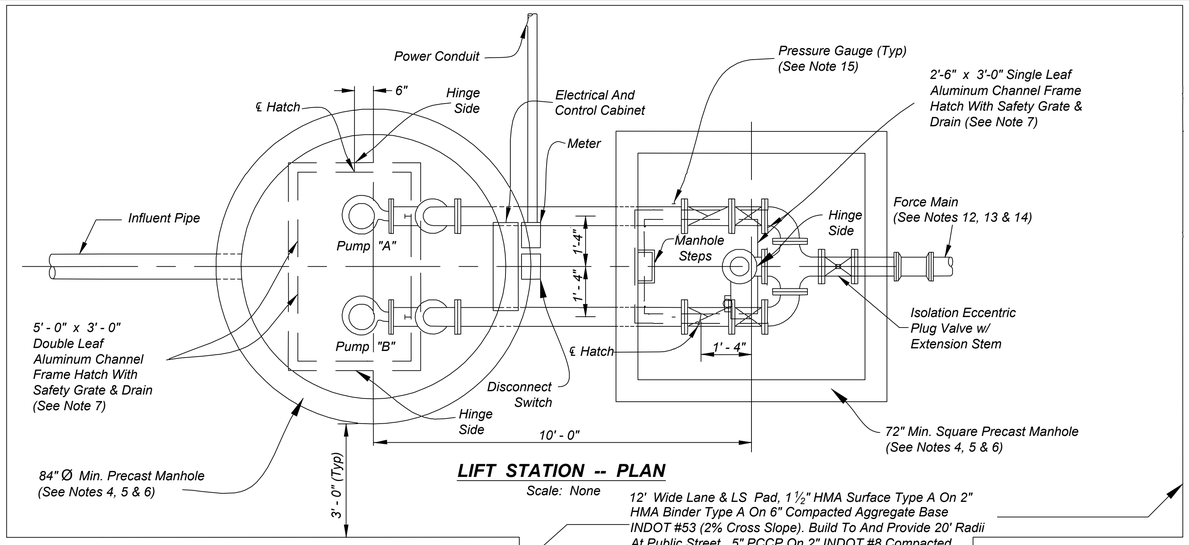
MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

SANITARY SEWER DETAILS AND NOTES

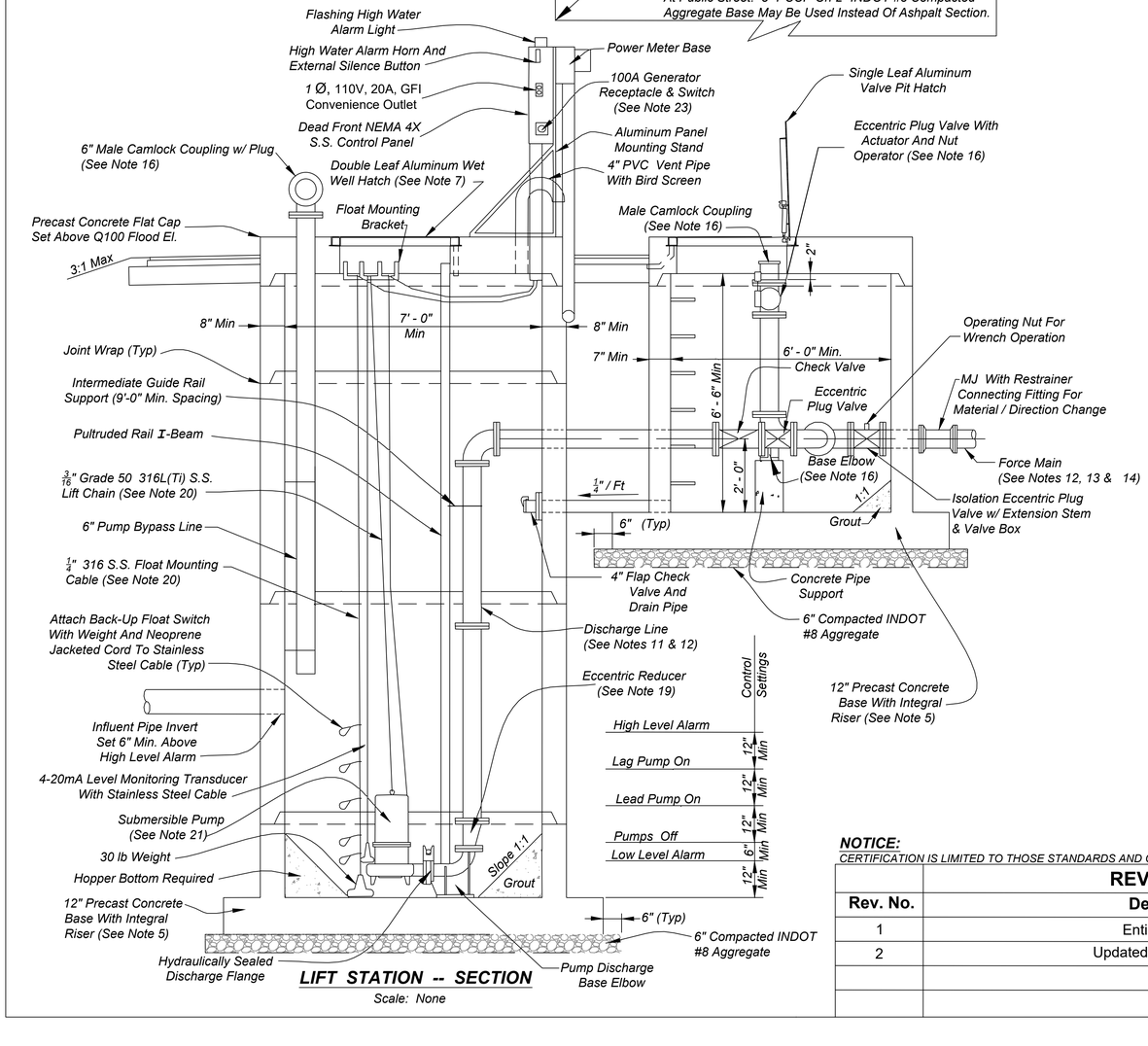
SHEET 13 OF 18



LIFT STATION -- PLAN

Scale: None

12' Wide Lane & LS Pad, 1 ½" HMA Surface Type A On 2" HMA Binder Type A On 6" Compacted Aggregate Base INDOT #53 (2% Cross Slope). Build To And Provide 20' Radii At Public Street. 5" PCCP On 2" INDOT #8 Compacted Aggregate Base May Be Used Instead Of Ashpalt Section.



LIFT STATION -- SECTION

Scale: None

GENERAL NOTES:

1.) Lift Station Use Shall Be Only On A Temporary Basis Or As Necessary To Comply With The City Of Shelbyville Sanitary Sewer Master Plan.

2.) Actual Lift Station Dimensions, Control Settings, & Pump Selection To Be As Indicated By The Design Engineer's Certification Sheet.

3.) City May Require Lift Station Perimeter To Be Fenced. If A Fence Is Required, Fence Shall Be Coated Chain Link. Gate(s) Shall Be Wide Enough To Permit Passage Of A Pump And Any Hauling Equipment.

4.) Lift Station And Valve Pit Manholes Shall Be Precast Concrete In Accordance With ASTM C-478, With Rubber Gaskets Equal To ASTM-443 With ¼" Gasket Material Or City Of Shelbyville Approved Equal. See Sanitary Sewer Details And Notes Sheet 12 For Manhole Steps.

5.) Concrete Lift Station Structure Shall Be Designed Based On Site Conditions To Resist Any Buoyancy Forces That May Be Encountered.

6.) All Lift Station Exterior Vertical Surfaces Shall Be Dampproofed With MasterSeal 614 Bituminous Coating, Or City Approved Equivalent.

7.) Aluminum Hatches Shall Be Channel Frame Type Flygt Safe-Hatch Or Approved Equal. Leaf Shall Be ¼" Aluminum Diamond Plate Live Load Rated To 300 PSF. Channel Frame Shall Be ¼" Extruded Aluminum With A Mill Finish And Bituminous Coating On Exterior Surfaces. Hatch Shall Be Provided With Type 316 S.S. Hardware Throughout, Automatic Hold-Open Arm With Release Handle, Slam Lock With Removable Handle, And 1-1/2" Drain Coupling.

8.) All Manholes And Lift Stations Receiving Discharge From A Forcemain Shall Be Coated With A City Approved Epoxy Or Polyurethane Coating Such As Culy Microsilica Cement Mortar And Epoxy Corrosion Barrier Or Approved Equal.

9.) Sewer Connection To Wet Well Shall Be KOR-N-SEAL, A-LOK, Dura-Seal, Or City Of Shelbyville Approved Equal.

10.) Force Main Penetrations Of Wet Well And Valve Pit Shall Be Core Drilled And Made Watertight Through Use Of KOR-N-SEAL, A-LOK, Dura-Seal, Or City Of Shelbyville Approved Equal.

11.) Piping And Fitting In Wet Well And Valve Pit Shall Be Factory Primed Tnemec Series 140-1211 To A Dry Film Thickness Of 5.0 To 11.0 Mils And Shall Be Field Painted With Tnemec Series 69-Color To A Dry Film Thickness Of 5.0 To 6.0 Mils. Fittings Shall Be Manufactured By Clow, Tyler, Mueller, Or As Approved By City Of Shelbyville.

12.) Piping In And Within 2 Feet Of Wet Well And Valve Pit Shall Be Class 53 Flanged Ductile Iron Pipe And Shall Be Manufactured By Griffith, U.S. Pipe, Or As Approved By City Of Shelbyville. All Fasteners Within Wet Well And Valve Vault Shall Be 316 S.S.

13.) Piping Not Within 2 Feet Of Wet Well And Valve Pit Shall Be DI AWWA C151, HDPE AWWA C906, PVC ASTM D2241, PVC AWWA C900, Or City Of Shelbyville Approved Equal. See Design Engineer's Certification Sheet For Pipe Class.

14.) For All Forcemains, Contractor Shall Install Two 10-Gauge Insulated, Solid Copper Tracer Wire And Polyethylene Identification Tape. Both Items Shall Be Highly Resistant To Alkalis, Acids, And Other Destructive Agents Found In Soil. The 10-Gauge Tracer Wire Shall Be Directly Attached To The Outside Of The Forcemain Pipe Every 10 Feet. The Polyethylene Identification Tape Shall Have A Minimum Thickness Of 4 Mils And Shall Be Placed Directly Over The Pipe 18" Below Final Grade.

15.) Pressure Gauge Shall Be Trerice Model 450 LFB Or City Of Shelbyville Approved Equal. Drill & Tap Run Of Pipe To Install Pressure Gauge.

16.) Camlock Coupling And Eccentric Plug Valve On By-Pass Line Shall Be 6 Inch Diameter With Transition To Force Main Size Occurring With Concentric Reducer Placed On Top Of Base Elbow. Fix Operating Nut For Eccentric Plug In Vertical Position To Enable Wrench Operation From Surface. Layout Of All Valve Vault Fittings And Equipment To Be Based Upon By-Pass Line Being Up Close To Hatch Opening As Shown.

17.) Plug Valve Shall Be An Eccentric Buna N Rubber Faced Plug With Hand Lever Operation In-Line And Gear Operation On By-Pass. Valve Shall Be Valmatic F-5800-R, Clow F-5412, Or As Approved By City Of Shelbyville. The Valve Shall Be Furnished With Fusion Bonded Epoxy Coating Inside And Out In Accordance With AWWA C-550.

18.) Check Valve Shall Be Bronze Seated, Rubber Coated, And Shall Be Provided With Bolted Covers For Easy Access To The Discs. Valve Shall Be Outside Adjustable Weight & Lever As Mueller A-2600-6-01, Clow F-5382, Or As Approved By City Of Shelbyville. The Valve Shall Be Furnished With Fusion Bonded Epoxy Coating Inside And Out In Accordance With AWWA C-550.

19.) Eccentric Reducer Shall Be Installed As Required For Force Main Size. Consult City Of Shelbyville Waste Water Department If Force Main Piping Is Greater Than 6-Inch Diameter.

20.) Provide Sufficient Lift Chain, Float Mounting Cable, And Pump Power & Sensor Cable To Enable Non-Spliced Field Adjustment. Lift Chain Shall Have A Minimum Work Load Limit Of 1100 Pounds. Float Mounting Cable Shall Be Held In Place By Weight. Floats Shall Be Fastened To Cable With S.S. Clamps Near Each Float Location. Pump Power & Sensor Cable Shall Be Suitable For Submersible Pump Applications And This Shall Be So Indicated By A Code/Legend Permanently Embossed On The Cable.

21.) Pumps "A" And "B" Shall Be Identical, Centrifugal, And Submersible. Pumps Shall Be Hydromatic Or Flygt Grinder Or Chopper Pumps Or City Approved Equal. Manufacturer Shall Warrant The Pumps For Five Years After Installation With Pro-Rated Warranty.

All Mating Surfaces Intended To Be Watertight Shall Be Machined And Fitted With Nitrile Rubber O-Rings With Sealing Complete When Metal - To - Metal Contact Is Made, Resulting In Controlled Compression Of O-Rings Without Specific Torque Limit. Fasteners Shall Be 316 S.S.

Mechanical Shaft Seal System Running In An Oil Reservoir Shall Have Separate, Constantly Lubricated Lapped Seal Faces. The Lower Seal Unit Between Media And Oil Reservoir Shall Consist Of One Stationary Seat And One Rotating Ring Held In Place By Its Own Spring. The Rotating Seat Ring And The Stationary Seat Ring Shall Be Made Of Tungsten-Carbide. The Lower Seal Shall Be Removable Without Disassembling The Seal Chamber. The Upper Seal Between Seal Chamber And Motor Shall Be Of The Same Design With Its Own Spring. Seals Shall Be Maintenance Free, But Shall Be Easily Inspectable.

Lower Seal Failure Alarm Shall Be Engaged By Seal Failure Sensor Provided In The Seal Chamber Which Senses Water Intrusion Through The Lower Seal.

Overtemperature Alarm And Pump Shut-Down Shall Be Engaged By Heat Sensor Attached To The Motor Windings. Motor Winding And Stator Lead Insulation Shall Be Class F With Maximum Temperature Capability Of 155°C Or Better. Housing Shall Be Filled With High-Dielectric Oil. Air Filled Housing May Be Acceptable When Approved By City Of Shelbyville. Pump And Motor Shall Be Designed To Operate Partially Or Fully Submerged In Pumped Media Without The Use Of Cooling Jackets.

Rail System Shall Enable The Easy Removal Of The Pump Without The Need For A Person To Enter The Wet Well. A Non-Corrosive FRP I-Beam Shall Be Provided For Each Pump. The Guide Rail Shall Be Supported At The Bottom By The Discharge Elbow, Aligned Perfectly Plumb And Securely Affixed To Access Frame. One Intermediate Guide Rail Support Is Required For Each 9' Of Guide Rail Length. Schedule 40 S.S. Guide Rails May Be Acceptable If Pump Is Approved By City Of Shelbyville.

22.) Automatic Pump Control System Shall Include All Necessary Items And Appurtenances, Which Might Normally Be Considered A Part Of A Complete System, Including But Not Limited To; Condensate Heater, Push To Test Button, Push to Silence Button, Alternator Selector Switch For Manual Designation Of Lead Pump, Time Delay Relay For Lag Pump Start, And Pump Run Time Hour Meters. System Shall Be Supplied By One Manufacturer, Shall Be Factory Assembled, Wired, And Tested, And Shall Be Per Complete Electrical Drawings And Instructions. Major Components And Sub-Assemblies Shall Be Identified As Function With Laminated, Engraved, Bakelite Nameplates. System Shall Be Built In A NEMA 4x S.S. Enclosure Suitable For The Specified Horsepower And Voltage Of The Pumps. The Outer Door Of The Panel Shall Be A Hinged Dead Front With Provisions For Padlocking. Inside Shall Be A Separate Hinged Panel To Protect All Electrical Components, H-O-A Switches, Run Lights, Circuit Breakers, Etc., Mounted Such That Only The Faces Protrude Through Said Panel With No Wiring Fixed To Said Panel. The Manufacturer Shall Warrant The Control Center For One Year After Installation Covering 100% Parts And Labor.

The Control Center Shall Be Approved By The WRRF Superintendent To Control The Pumps And to Maintain The Level In The Wet Well. The Controller Shall Also Receive A Signal From The Back-Up Floats And Automatically Switch To Back-Up If The 4-20 mA Signal Is Lost. All Necessary Components For Above Controller To Operate Shall Also Be Included.

The Control Center Shall Incorporate Connections For Heat Sensors Which Are Installed In The Pumps. The Connection Shall Disconnect The Starter Upon High Temperature Signal, And Will Automatically Reconnect When Condition Has Been Corrected.

The Control Center Shall Incorporate Connections For Seal Failure Sensors Which Are Installed In The Pumps. The Panel Will Have A Seal Failure Alarm Light For Each Pump. This Alarm Indicates Failure Of The Lower Mechanical Seal In The Pump. This Will Be An Alarm Light Only And Will Not Shut Down The Pump.

The Liquid Level Of The Wet Well Shall Be Sensed By A Submersible Level Transducer Model 6100 As Manufactured By Sigma. The Transducer Shall Be A 2-Wire Type To Operate From A Supply Voltage Of 15 To 45 VDC And Produce A 4-20 mA Instrumentation Signal In Direct Proportion To The Measured Level Excursion Over A Factory-Calibrated Range Which Will Be Indicated By Readout On The Front Panel. It Shall Be Of The Head-Pressure Sensing Type, Suitable For Continuous Submerged Operation And Shall Be Installed In Accordance With The Manufacturer's Instructions. The Bottom Diaphragm Face Of The Sensor Will Be Installed Where Shown On The Plans. The Diaphragm Face Shall Be A Minimum Of 2.5 Inches Outside Diameter.

Provide The Services Of A Factory-Trained, Qualified Representative To Inspect, To Adjust, And To Place The System In Trouble-Free Operation And To Instruct The Operating Personnel In The Proper Operation And Care Of The System.

All Major Components Of Control Center Shall Be American-Made And Available From Local Sources Within 100 Miles Of The City Of Shelbyville Or Approved By The Waste Water Superintendent. Pump Manufacturer Shall Accept The Control Center In Writing To Ensure Unit Responsibility And Warranty.

Provide A Manual Transfer Type Disconnect Switch Housed In A Separate NEMA 4 X S.S. Enclosure With External Operation Handle Capable Of Being Locked In The "ON" Normal Position Or The "ON" Secondary Position With A Middle "OFF" Position. Control Panel Shall Be A Single Or Double Door NEMA 4X With A 3 Point Latch.

A Lightning Arrestor Shall Be Provided At The Phase Relay Block And Connected To Each Line Of The Incoming Side Of The Power Input Terminals. A Single Main Fusible/Breaker Disconnect Switch Of Adequate Size To Provide Power For Control, Operation, And Appurtenant Components Shall Be Provided. Provide A Circuit Breaker And Magnetic Starter With Each Leg Manual Reset Overload Protected For Each Pump. Starters Shall Have Auxiliary Contacts On 3 Ø Applications To Operate Both Pumps Simultaneously. Provide A Phase Monitor With Phase Fail Relay. Provide A Circuit Breaker And Transformer To Power The Control Panel With 1 Ø, 115 Volt Service For All Control Functions Including Scada, Radio And Flowmeter. Provide A Green "RUN" Light And H-O-A Switch To Enable Field Connections.

Materials And Installation Of The Required Equipment Grounding Shall Be In Accordance With NEC Section 250-83(c). All Wiring Shall Have Not Less Than 600 Volt Insulation. Wiring And Buss Shall Be In Accordance With NEC, State, Local, And NEMA Standards. All Wiring Shall Be Color Coded. Minimum 4" Diameter, Schedule 40 Conduit Shall Be Provided From Wet Well To Control Panel Enabling Pump Power & Sensor Cables And Float Switch Cables To Be Easily Pulled. Seal Conduit At Control Panel To Prevent Sewer Gases From Entering. All Conduits, Fittings, Or Connections Shall Enter From The Bottom Of Enclosures.

Sump Level Rise To Lead Pump Run Float Causes Lead Pump To Operate. Lead Pump Operating And Sump Level Falling To Pumps Off Float Causes Lead Pump To Shut Off. Lead Pump Operating And Sump Level Rising To Lag Pump Run Float Causes Lag Pump To Operate. Lag Pump Operating And Sump Level Falling To Pumps Off Float Causes Both Pumps To Shut Off. Sump Level Rise To High Level Alarm Causes High Level Alarm To Operate. Sump Level Fall To Low Level Alarm Causes Low Level Alarm To Operate. An Alternating Relay Shall Be Provided To Cause Pumps To Alternate Whenever Pumps Off Float Is De-Energized. If One Pump Fails For Any Reason, The Remaining Pump Shall Operate Upon Sump Level Rise To Lag Pump Run Float. An Hour Meter Shall Be Provided For Each Pump To Record The Elapsed Operating Time Of Each Pump. Floats Are Backup If Level Transducer Fails.

23.) Generator Receptacle To Be Crouse-Hinds AR2041-SS22 Dead Front Interlocked Receptacle With Factory Sealed Switch For Receipt Of The City Of Shelbyville Crouse-Hinds AP-20457-SS22 M80 Plugged Portable Generator Set.

24.) The Contractor Shall Furnish A Wireless Cellular Monitor As Manufactured By Omni-Site.net And Approved By The City Of Shelbyville. The Monitor Shall Be Mounted In The Above Main Pump Control Panel With Antenna Mounted On Enclosure Exterior. Contacts To Be Monitored Shall Be Pump 1 Fail, Pump 2 Fail, Pump 1 Seal Fail, Pump 2 Seal Fail, High Water Alarm, Low Water Alarm, Control Power Fail, Main Power Phase Fail, Pump 1 Run (Normally Open Contact), And Pump 2 Run (Normally Open Contact).

25.) Four Manuals Shall Be Presented To The Owner Which Shall Include The Following Minimum Information: 1) Operation Instructions, 2) Maintenance Instructions, 3) Recommended Spare Parts List, 4) Lubrication Schedule, 5) Structural Diagrams, 6) As-Built Wiring Diagrams, & 7) Bill Of Materials.

NOTICE:

CERTIFICATION IS LIMITED TO THOSE STANDARDS AND GUIDELINES PER THIS SHEET. CONSTRUCTION IS SUBJECT TO CONSTRUCTION DRAWINGS, SHOP DRAWINGS, AND DESIGN ENGINEER'S CERTIFICATION SHEET.

REVISIONS

Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

SANITARY SEWER LIFT STATION STANDARDS AND GUIDELINES

SHEET 14 OF 18

FIRE DEPARTMENT GENERAL NOTES

1.) A Water Distribution Plan Shall Be Submitted As Part Of The Site Development Plans And Approved By The City Of Shelbyville Tech Review Committee Prior To Issuance Of An Improvement Location Permit. The Water Distribution Plan Shall Include The Following Items:
   A. Existing And Proposed Water Mains With Sizes Denoted
   B. Location Of Existing And Proposed Fire Hydrants
   C. Location Of Proposed Fire Protection Equipment (FDC, PIV, Etc.)

2.) An Approved Water Supply Capable Of Supplying The Required Fire Flow For Fire Protection Shall Be Provided To Premises Upon Which Facilities, Buildings, Or Portions Of Buildings Are Hereafter Constructed.

3.) Water Distribution Mains Shall Be Looped Or Designed To Facilitate Future Looping As Appropriate. Distribution Mains For Commercial And Industrial Structures Shall Be Minimum 8 Inches In Diameter Or As Determined By The Shelbyville Fire Department And Indiana American Water.

4.) All Water Mains Shall Be Minimum 8 Inches In Diameter. All Hydrant Feeder Lines Shall Be Minimum 6 Inches In Diameter. All Public And Private Water Mains And Appurtenances Shall Meet Indiana American Water Company And American Water Works Association (AWWA) Specifications.

5.) All Fire Hydrants and FDCs Shall Be Bagged Prior To Being Placed In Service.

6.) A Minimum Of Two Means Of Access Shall Be Provided For:
   A. Any Subdivision With 50 Or More Single Or Double Family Residential Lots;
   B. Any Development Having One Or More Commercial, Multi-Family, Institutional, Or Industrial Structures 3 Stories Or Greater In Height; Or
   C. Any Development Having 3 Or More Commercial, Multi-Family, Institutional, Or Industrial Structures Of Any Height.

7.) Fire Department Accessibility Shall Not Be Obstructed In Any Manner, Including The Parking Of Vehicles. Fire Apparatus Access Shall Have A Minimum Unobstructed Width Of 26 Feet, Measured From The Outside Of The Building Sidewalk And Foundation Landscaping, And A Minimum Unobstructed Vertical Clearance Of 13 Feet 6 Inches, Except For:
   A. Truck Dock Areas Designed For Loading And Unloading
   B. Areas Used For Trash Compactors
   C. Parking Areas Approved By The Shelbyville Fire Department

8.) Approved Fire Apparatus Access Roads Shall Be Provided For Every Facility, Building, Or Portion Of A Building Hereafter Constructed Or Moved Into Or Within The City Of Shelbyville. The Fire Apparatus Access Roads Shall Extend To Within 150 Feet Of All Portions Of The Facility Or Any Portion Of The Exterior Wall Of The First Story Of The Building. Apparatus Access Road Shall Be Constructed Of Driveable Grass, Asphalt, Or Concrete And Be Designed To Adequately Support Fire Vehicle Loads Of 75,000 Pounds Or Greater.

9.) Fire Apparatus Access Road Shall Be Constructed And Made Serviceable Prior To Start Of Building Construction. Fire Apparatus Access Roads Shall Not Be Obstructed In Any Manner, Including The Parking Of Vehicles. The Apparatus Access Road Shall Have A Minumum Unobstructed Horizontal Width Of 24 Feet And Vertical Clearance Of 13 Feet 6 Inches At All Times.

10.) Knox Boxes Are Required For All Commercial, Industrial, Institutional, Apartment, And Townhouse Buildings And Shall Be Mounted In Accordance With The Specific Directions Of The Shelbyville Fire Department. Required Number Of Knox Boxes Shall Be Determined By The Shelbyville Fire Department.

11.) Alarm Panel Shall Be Located Near The Front Door.

12.) Electrical Rooms, Riser Rooms, Roof Access, Basement Access, And Alarm Rooms Shall Be Labeled In Minimum 3-inch Letters And Shall Be Of Reflective Material.

13.) No Smoking Signs Shall Be Located Near All Outside Doors.

14.) Vehicle Impact Protection Shall Be Installed For Gas Meters.

15.) New And Existing Buildings Shall Have Approved Address Numbers Plainly Legible And Visible From The Road Along The Property Frontage. These Numbers Shall Contrast With Their Background. Address Numbers Shall Be Arabic Numerals Or Alphabet Letters. Numbers Shall Be A Minimum Of 4 Inches High With A Minimum Stroke Width Of 0.5 Inches.

16.) Temporary Building Address Signs Shall Be Installed At The Start Of Construction For All New Buildings. Temporary Address Signs Shall Meet The Requirements In Note 15.

17.) Streets And Roads Shall Be Identified With Approved Signs. Temporary Signs Shall Be Installed At Each Street Intersection When Construction Of New Roadways Allows Passage By Vehicles. Signs Shall Be Of An Approved Size, Weather Resistant, And Be Maintained Until Replaced By Permanent Signs.

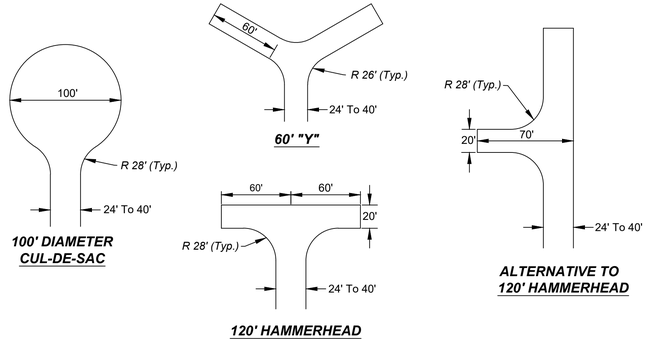
18.) All Roads Or Drives Which Dead-End That Are In Excess Of 150 Feet In Length Shall Be Designed With Width And Turnaround Provisions In Accordance With The Dead-End Road Turnaround Detail On This Sheet. All Roads Or Drives With Fire Apparatus Access Shall Have A Minimum Unobstructed Vertical Clearance Of 13 Feet 6 Inches.

19.) All Other Items Not Specifically Stated Herein Shall Be In Accordance With The Most Recently Adopted Edition Of The Indiana Fire Code, NFPA, The International Fire Code, and Indiana General Administrative Rules.

20.) For Required Inspections, Contact Shelbyville Fire Department 24 Hours Prior To Inspection At 317-392-5119.

TABLE 20: DEAD-END ROAD REQUIREMENTS

LENGTH (ft)	WIDTH (ft)	TURNAROUNDS REQUIRED
0-150	24-40	None
151-500	24-40	Cul-de-Sac, Hammerhead, Or "Y"
501-600	24-40	Cul-de-Sac, Hammerhead, Or "Y"



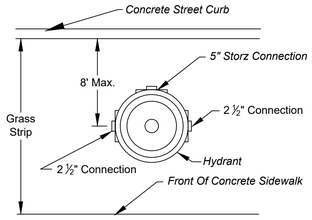
100' DIAMETER CUL-DE-SAC

60' "Y"

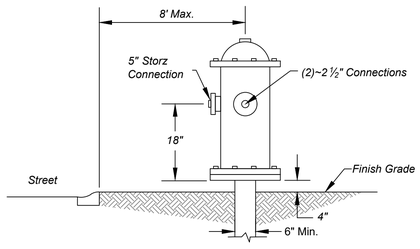
ALTERNATIVE TO 120' HAMMERHEAD

120' HAMMERHEAD

DEAD-END ROAD TURNAROUND DETAILS
Scale: None

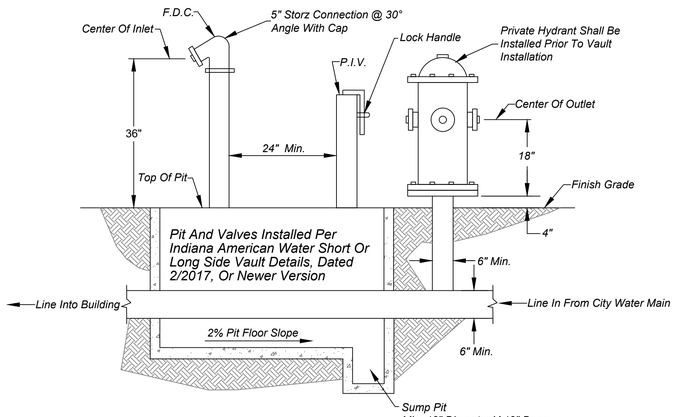


PLAN



SECTION

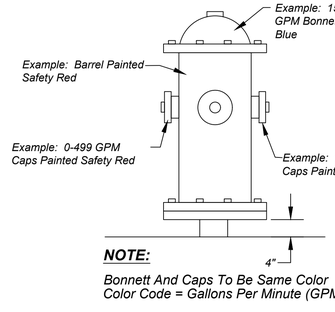
FIRE HYDRANT LOCATION WITHIN R/W
Scale: None



NOTES:

1. A Permanent Sump Pump Shall Be Installed In The Sump Pit. Sump Pump Discharge Pipe Shall Connect Directly To An Underdrain Or Storm Sewer Structure
2. Private Hydrant To Be Installed Upon Request By The Shelbyville Fire Dept.
3. 6 Inch Diameter Schedule 40 Pipe Bollards, Painted Safety Yellow, Shall Be Installed Adjacent To FDC's And Private Hydrants Where No Curb Is Present.

FIRE HYDRANT AND CONNECTION DETAILS
Scale: None



NOTE:
Bonnett And Caps To Be Same Color
Color Code = Gallons Per Minute (GPM)

TABLE 21: PRIVATE HYDRANT COLOR CODING

CLASS	GPM	COLOR
AA	1500 Or Greater	Safety Blue
A	1000 To 1499	Safety Green
B	500 To 999	Safety Orange
C	Less Than 499	Safety Red

PRIVATE FIRE HYDRANT COLOR CODE DETAIL
Scale: None

FIRE HYDRANT NOTES

1.) Fire Hydrants Shall Not Be Located More Than 500 Feet Apart. Shelbyville Fire Department Reserves The Right To Require Less Hydrant Spacing For Large Buildings. All Hydrants Shall Be Located A Minimum 1½ Times Outside The Collapse Zone Of The Building. All Fire Hydrants Within City Right-Of-Way Shall Be Located Between The Curb And Sidewalk As Shown Herein. The 5 ½ Inch Connection Shall Face The Street.

2.) Fire Hydrant Outlets Shall Be Located No Further Than 8 Feet From The Edge Of Pavement.

3.) All Fire Hydrants Shall Be Installed, Functional, And Approved By The Fire Inspector Prior To Start Of Building Construction.

4.) Fire Hydrants Shall Have A Maintained 3 Foot Radial Clear Space At All Times.

5.) The Size Of The Main Valve Opening And The Size Of The Hydrant Barrel Shall Be Suitable For Required Fire Protection.

6.) Dry Hydrants Shall Be Reviewed And Approved By The Fire Department. Dry Hydrants Shall Be Placed Within 8 Feet Of Roadway. Connection Shall Be 4 ½ Inch Male, National Standard Thread. Center Of Connection Shall Be 32 Inches Above Finished Grade With A Cap And Chain. Dry Hydrant Shall Comply With NFPA Standard 1142, Ch.8.

7.) Private Water Hydrants Shall Be Painted Safety Red In Color, Flow Tested, And Painted To Meet NFPA Standards As Shown Herein. See NFPA Standards 24 and 291, And Table 21, This Sheet.

FIRE DEPARTMENT CONNECTION (FDC) NOTES

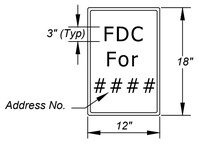
1.) The FDC Shall Not Be Located More Than 50 Feet From The Nearest Fire Hydrant. The FDC Shall Be Located A Minimum 1 ½ Times Outside The Collapse Zone Of The Building.

2.) The FDC Shall Meet Or Exceed The Requirements Of The Most Recent State Of Indiana Adopted Edition Of NFPA 13 and NFPA 14.

3.) The FDC Shall Be Provided With A Single 5 Inch Storz Connection That Shall Face Towards The Nearest Point Of Fire Department Access.

4.) A Minimum 4 Inch FDC Service Pipe Shall Be Utilized On A Fire Service Line That Is 6 Inches Or Larger.

5.) The FDC Shall Be Installed Directly To The Sprinkler System.



FDC SIGN

FIRE LANE SIGN

NOTES:

1. FDC and Fire Lane Signs Shall Be Constructed Out Of A Material That Is Not Susceptible To Degradation. The Sign Material Shall Be Approved By The Shelbyville Fire Department.
2. The Sign Lettering Shall Be Red In Color With A White Reflective Background.
3. Signs Shall Be Supported By An Approved Permanent Post. FDC Signs May Be Attached To The FDC By An Approved Method.
4. If Freestanding, The Top Of The Sign Shall Be Mounted Between 36 Inches And 48 Inches From Finished Grade.

FDC AND FIRE LANE SIGN DETAILS
Scale: None

FIRE LANE PARKING DETAIL
Scale: None

1.) The "No Parking Fire Lane" Message Shall Be Six (6) Feet In Depth From Edge Of Pavement Or Curb.

2.) The Letters Shall Be Two (2) Feet In Height And A Minimum Of Four (4) Inches Wide.

3.) A "No Parking Fire Lane" Sign Shall Be Placed Every Thirty (45) Feet And Comply With Standard Sign Detail On This Sheet. Fire Apparatus Access Roads Up To 26 Feet Wide Shall Be Posted With Signs On Both Sides As A Fire Lane. Fire Apparatus Access Roads Greater Than 26 Feet Wide Shall Be Posted With Signs On One Side As A Fire Lane.

4.) The Striping Shall Be A Minimum Of Four (4) Inches Wide At A Forty-Five (45) Degree Angle And Five (5) Feet On Center.

5.) All Pavement Markings Shall Be Painted Traffic Yellow. Curb Adjacent To Fire Lanes Shall Be Painted Safety Yellow Along The Entire Length Of The Fire Lane. Curb Adjacent To Hydrants Or FDC's Shall Be Painted Safety Red.

6.) Pavement Adjacent To Fire Protection Equipment, Including FDC, Fire Protection Control Valve, And Fire Hydrants Shall Be Marked In Accordance With This Detail. A "No Parking Fire Lane" Sign Shall Be Placed Every 30 Feet In These Zones And Comply With The Standard Sign Details On This Sheet.

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Revised Storz Details	01/10/2014
3	Updated Entire Set	02/11/2020

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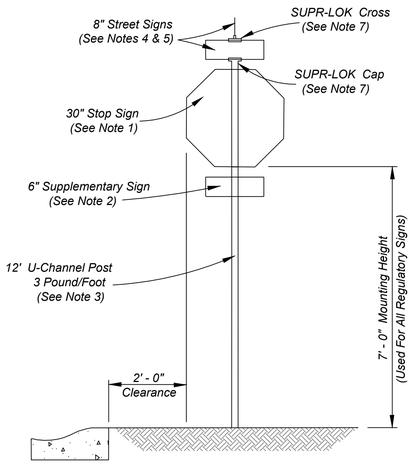
CITY OF SHELBYVILLE

FIRE DEPT. AND WATER STANDARD DETAILS

SHEET 15 OF 18



TYPICAL REGULATORY / WARNING AND STREET SIGN REQUIREMENTS:

1.) Stop Sign Shall Be High Intensity And In Accordance With Most Recent Indiana Manual On Uniform Traffic Control Devices. Unless Otherwise Detailed On This Sheet, Other Regulatory Signs Shall Be Of The Design, Size, And Construction As Specified In Said Manual. All Signs Shall Be Tagged On The Rear Of The Sign With An Adhesive Label With The Month And Year That The Signs Were Installed.

2.) An All Way Stop Intersection Requires An "ALL WAY" Supplementary Sign 18" Wide By 6" Tall In Accordance With Said Manual. A Two Way Stop Controlled Intersection Requires A "CROSS TRAFFIC DOES NOT STOP" Supplementary Sign Of The Same Size And In Accordance With Said Manual.

3.) All Regulatory/Warning Signs, Other Than Stop Signs, With Panels Less Than Or Equal To 48" x 30" In Size Shall Be Mounted On 12' U-Channel Posts (3 pounds/foot). All U-Channel Posts Shall Be Painted Green. Regardless If Material For Posts Is Other Than As Shown Herein, Mounting Height Shall Be 7' - 0".

4.) Streets Shall Be Signed At Non-Signalized Intersections With Two Such Street Sign Assemblies. Separate 12' U-Channel Post (3 pounds/foot) For Street Signs Permitted Only At Signalized Intersections.

5.) Street Signs Shall Be 8" Tall Extruded Aluminum (6063-T6) Reflective Green Background With 6" Tall Reflective White Letters. Street Signs Shall Have Rounded Corners.

6.) Refer To INDOT Standard Drawings E 802-SNGS-09 And E802-SNGS-10 For Post Standards And For The Mounting Of Sign Panels Larger Than 48" x 30".

7.) SUPR-LOK Cross Shall Be Model #990X. SUPR-LOK Cap Shall Be Model #91UX-NU180.

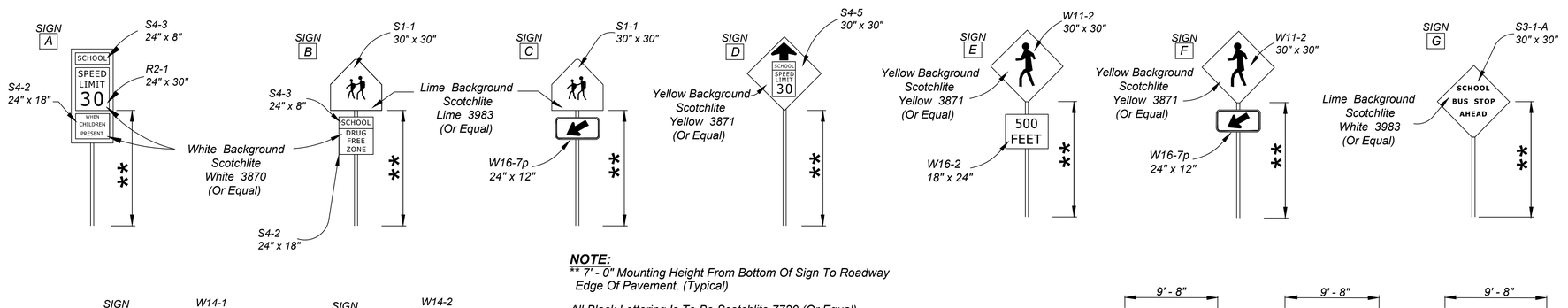
8.) Signs With Panel Widths Greater Than 36" Shall Be Reinforced On The Back Side Of The Panel By An Approved Method.

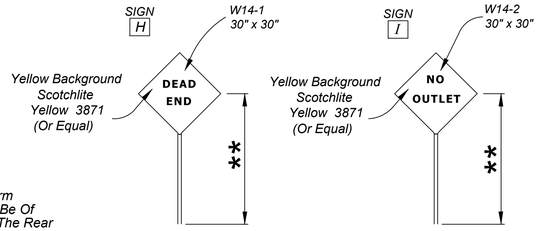
9.) Alternate Custom Posts May Be Used Upon Receiving Expressed Written Permission From The City Of Shelbyville. Custom Posts Shall Be The Financial Responsibility Of Subdivision's Homeowner's Association. In The Event That The City Of Shelbyville Must Replace Custom Sign Posts, The City Reserves The Right To Install Its Standard Steel Post.

10.) All Required Traffic Control (Signs And Markings) Shall Be In Place Prior To The Release Of The First Occupancy Permit.

11.) All Signs Shall Be Compliant With Latest Set Of MUTCD Standards.

12.) The City Of Shelbyville Will Order All Regulatory Signs, Warning Signs, And Street Signs For The Contractor. The Contractor Shall Pay For The Signs.



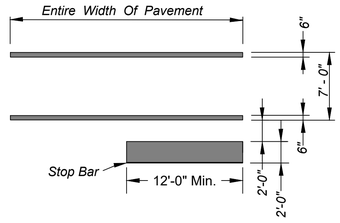


NOTE:
** 7' - 0" Mounting Height From Bottom Of Sign To Roadway Edge Of Pavement. (Typical)

All Black Lettering Is To Be Scotchlite 7720 (Or Equal)

REGULATORY / WARNING SIGN DETAILS

Scale: None

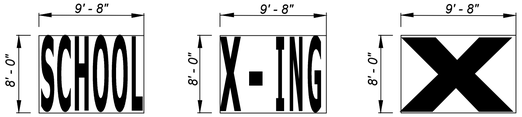


INTERSECTION CROSSWALK DETAIL

Scale: None

SPECIAL CROSSWALK DETAIL

Scale: None



PAVEMENT MARKING DETAIL

Scale: None

GENERAL NOTES:

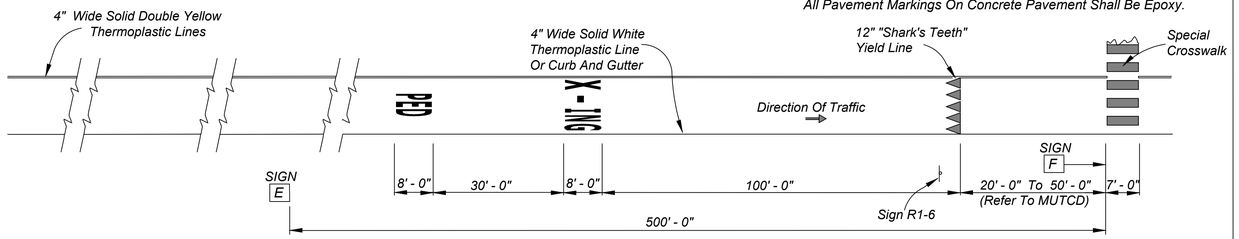
1.) All Regulatory Signs Shall Be High Intensity And In Accordance With The Indiana Manual On Uniform Traffic Control Devices, Most Recent Edition.

2.) Signs S3-1-A, W14-1 & W14-2 To Be Installed When Required By The City Of Shelbyville.

3.) All Pavement Markings Shown In These Details, Except For Double Yellow Lines And Edge Lines, Shall Span Across Approach Lanes.

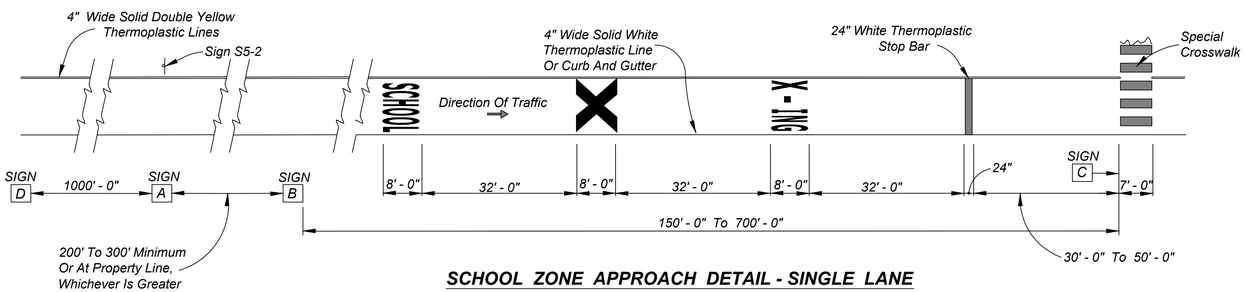
4.) Where Pedestrian Cross Traffic Is Not Established, School Crossing Pavement Markings And Sign C May Be Omitted At The Discretion Of The City Of Shelbyville.

5.) All Pavement Markings On Asphalt Pavement Shall Be Thermo Plastic. All Pavement Markings On Concrete Pavement Shall Be Epoxy.



PEDESTRIAN CROSSING APPROACH DETAIL - SINGLE LANE

Scale: None



SCHOOL ZONE APPROACH DETAIL - SINGLE LANE

Scale: None

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Removed Monument Detail	01/10/2014
3	Entire Set	02/11/2020

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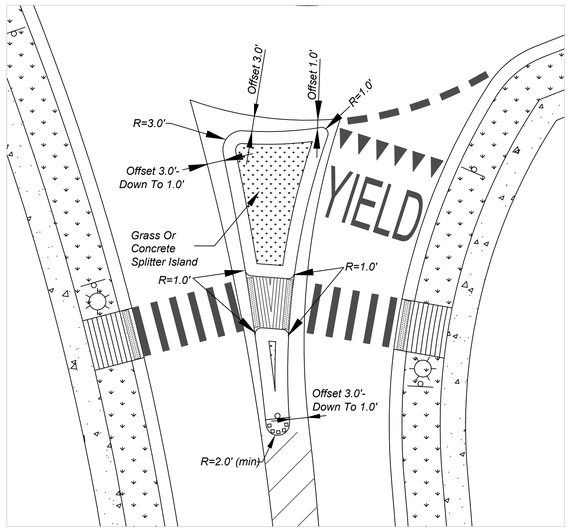
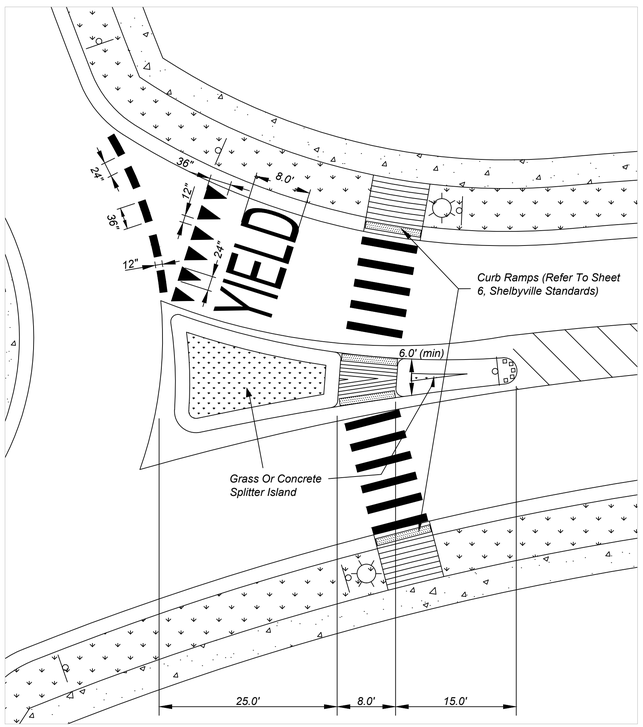
SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

SIGNS AND MARKINGS DETAILS

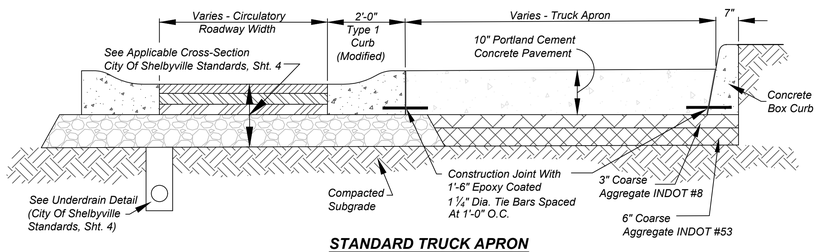
SHEET 16 OF 18





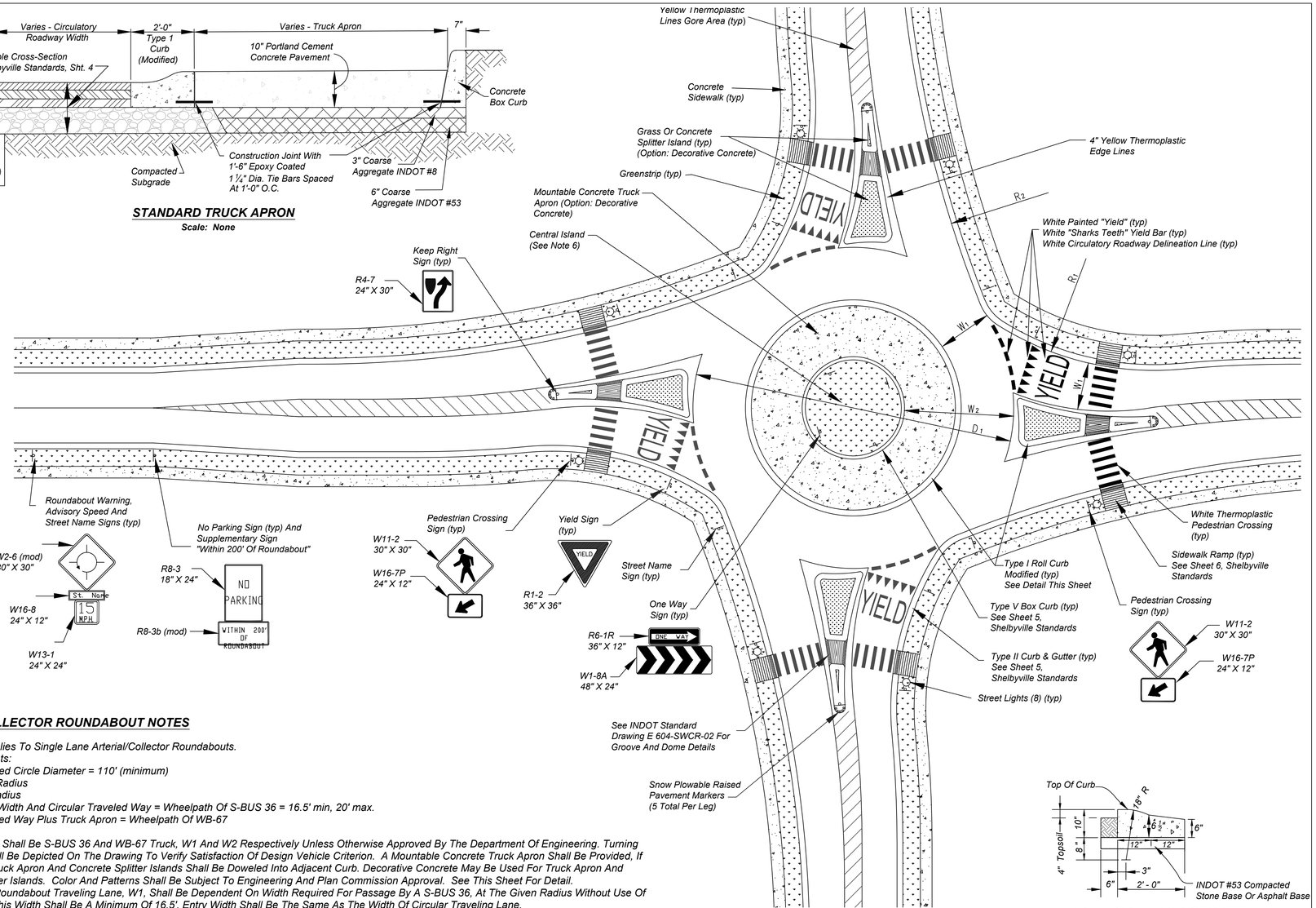
SPLITTER ISLAND AND APPROACH DETAILS

Scale: None



STANDARD TRUCK APRON

Scale: None



ARTERIAL/COLLECTOR ROUNDABOUT NOTES

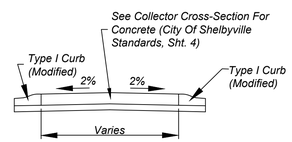
1. This Sheet Applies To Single Lane Arterial/Collector Roundabouts.
2. Design Elements:
   - 2.1. D1: Inscribed Circle Diameter = 110' (minimum)
   - 2.2. R1: Entry Radius
   - 2.3. R2: Exit Radius
   - 2.4. W1: Entry Width And Circular Traveled Way = Wheelpath Of S-BUS 36 = 16.5' min, 20' max.
   - 2.5. W2: Traveled Way Plus Truck Apron = Wheelpath Of WB-67
3. Design Vehicle Shall Be S-BUS 36 And WB-67 Truck, W1 And W2 Respectively Unless Otherwise Approved By The Department Of Engineering. Turning Templates Shall Be Depicted On The Drawing To Verify Satisfaction Of Design Vehicle Criterion. A Mountable Concrete Truck Apron Shall Be Provided, If Necessary. Truck Apron And Concrete Splitter Islands Shall Be Doweled Into Adjacent Curb. Decorative Concrete May Be Used For Truck Apron And Concrete Splitter Islands. Color And Patterns Shall Be Subject To Engineering And Plan Commission Approval. See This Sheet For Detail.
4. The Width Of Roundabout Traveling Lane, W1, Shall Be Dependent On Width Required For Passage By A S-BUS 36, At The Given Radius Without Use Of Truck Apron. This Width Shall Be A Minimum Of 16.5'. Entry Width Shall Be The Same As The Width Of Circular Traveling Lane.
5. Cross Walk Shall Be Located 25' From The Inscribed Circle. A 6' Wide Refuge Area, Measured At Its Midpoint, Shall Be Provided For Pedestrians In The Splitter Island. No Pedestrian Crossings Shall Be Allowed Into The Roundabout Central Island.
6. Any Landscaping Or Objects Located In The Middle Of The Central Island Shall Be Less Than 24" In Height, Provide Appropriate Sight Distance For Given Approaching Roadway Design Speed, And Be Approved By The Department Of Engineering.
7. All Signage And Pavement Markings Shown Shall Be Used As Minimums. Multi-Lane Roundabouts Shall Use "Fish-Hook" Markings At Entries, To Delineate Lane Usage As Well As Advance Signage For Driver Instruction. All Signage And Pavement Markings Shall Be In Accordance With The Most Recent Version Of The Indiana MUTCD And Are Subject To Approval By The Department Of Engineering.
8. Use Of "Radial Design" For Roundabout Is Discouraged. Off-Set Right Design Is Not Acceptable.
9. No Drainage Structures Shall Be Located Within Circumference Of Inscribed Circle Of Single-Lane Roundabouts.
10. All Pavement Markings Shall Be Thermoplastic.
11. Snowplowable Raised Pavement Markers (RPM) Shall Be Placed At Each Gore Area Entering The Roundabout, Prior To Pedestrian Crossings In A V-Shaped Pattern. One RPM Shall Be Placed At The Point Of The Gore Area, With Two More Placed On Either Side Of The Perimeter Of The Gore Area At Equal Distances Up To The Crossing Location, For A Total Of Five (5) RPM's.
12. All Signs Shall Be High Intensity, High Reflectivity And In Accordance With The Most Recent INDIANA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. See This Sheet For Sign Codes And Sizes.
13. For Cross-Sections For Which Curb Is Poured On Asphalt, Asphalt Is To Be Paved Through Entire Splitter Island.
14. All Other Appropriate City Of Shelbyville Standards Apply.
15. Street Lighting Is Required On The Approach Side Of All Pedestrian Crossings At The Roundabout Intersection.
16. All Roundabout Designs Must Be Approved By The Departments Of Engineering And Plan Commission.

ARTERIAL/COLLECTOR ROUNDABOUT DETAIL

Scale: None

TYPE I MODIFIED 2' CONCRETE ROLL CURB & REVERSE GUTTER

Scale: None



NOTE: Splitter Island May Be Decorative Concrete. See Note 3.

TYPICAL SPLITTER ISLAND CROSS-SECTION DETAIL

Scale: None

NOTICE:
CERTIFICATION IS LIMITED TO THOSE STANDARDS AND GUIDELINES PER THIS SHEET. CONSTRUCTION IS SUBJECT TO CONSTRUCTION DRAWINGS, SHOP DRAWINGS, AND DESIGN ENGINEER'S CERTIFICATION SHEET.

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Reformatted Sheet	01/10/2014
3	Updated Entire Set	02/11/2020

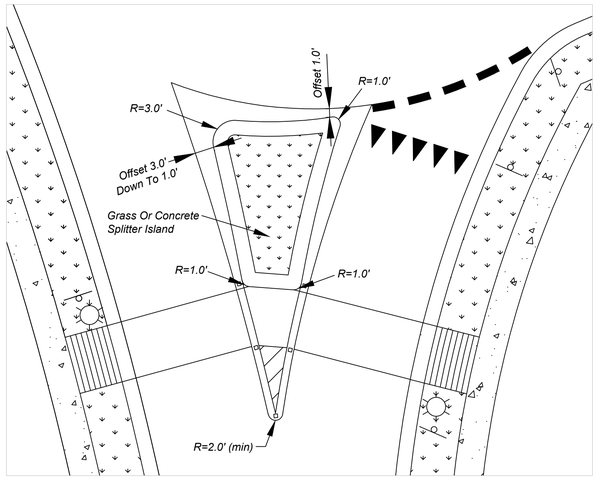
MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

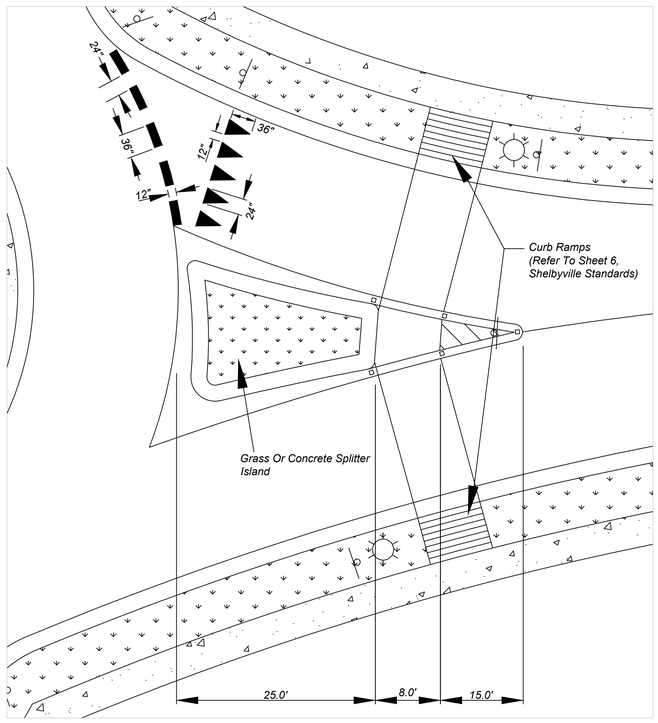
SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

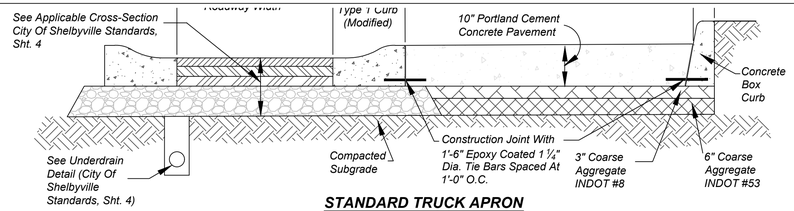
ARTERIAL/COLLECTOR ROUNDABOUT STANDARDS & DETAILS

SHEET 17 OF 18

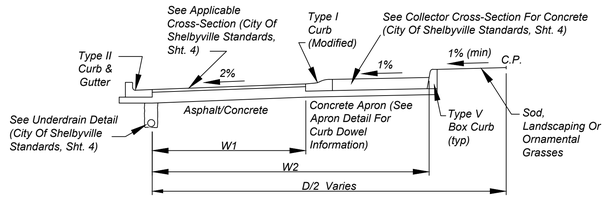




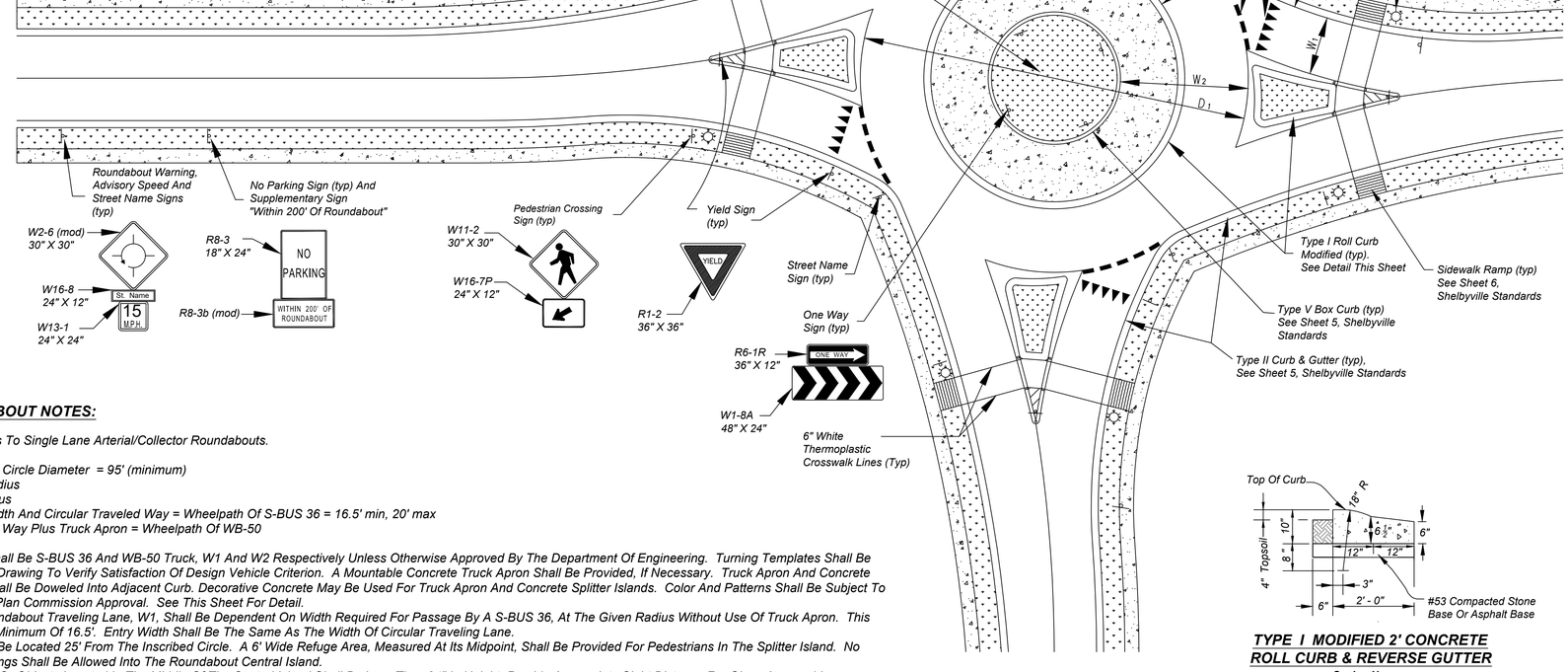
SPLITTER ISLAND AND APPROACH DETAILS
Scale: None



STANDARD TRUCK APRON
Scale: None

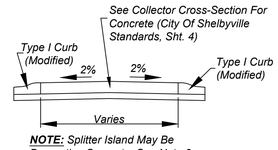


LOCAL SINGLE LANE ROUNDABOUT CROSS SECTION
Scale: None



LOCAL ROUNDABOUT DETAIL
Scale: None

TYPE I MODIFIED 2' CONCRETE ROLL CURB & REVERSE GUTTER
Scale: None



NOTE: Splitter Island May Be Decorative Concrete. See Note 3.

TYPICAL SPLITTER ISLAND CROSS-SECTION DETAIL
Scale: None

LOCAL ROUNDABOUT NOTES:

1. This Sheet Applies To Single Lane Arterial/Collector Roundabouts.
2. Design Elements:
   - 2.1. D1: Inscribed Circle Diameter = 95' (minimum)
   - 2.2. R1: Entry Radius
   - 2.3. R2: Exit Radius
   - 2.4. W1: Entry Width And Circular Traveled Way = Wheelpath Of S-BUS 36 = 16.5' min, 20' max
   - 2.5. W2: Traveled Way Plus Truck Apron = Wheelpath Of WB-50
3. Design Vehicle Shall Be S-BUS 36 And WB-50 Truck, W1 And W2 Respectively Unless Otherwise Approved By The Department Of Engineering. Turning Templates Shall Be Depicted On The Drawing To Verify Satisfaction Of Design Vehicle Criterion. A Mountable Concrete Truck Apron Shall Be Provided, If Necessary. Truck Apron And Concrete Splitter Islands Shall Be Doweled Into Adjacent Curb. Decorative Concrete May Be Used For Truck Apron And Concrete Splitter Islands. Color And Patterns Shall Be Subject To Engineering And Plan Commission Approval. See This Sheet For Detail.
4. The Width Of Roundabout Traveling Lane, W1, Shall Be Dependent On Width Required For Passage By A S-BUS 36, At The Given Radius Without Use Of Truck Apron. This Width Shall Be A Minimum Of 16.5'. Entry Width Shall Be The Same As The Width Of Circular Traveling Lane.
5. Cross Walk Shall Be Located 25' From The Inscribed Circle. A 6' Wide Refuge Area, Measured At Its Midpoint, Shall Be Provided For Pedestrians In The Splitter Island. No Pedestrian Crossings Shall Be Allowed Into The Roundabout Central Island.
6. Any Landscaping Or Objects Located In The Middle Of The Central Island Shall Be Less Than 24" In Height, Provide Appropriate Sight Distance For Given Approaching Roadway Design Speed, And Be Approved By The Department Of Engineering.
7. All Signage And Pavement Markings Shown Shall Be Used As Minimum Control. All Signage And Pavement Markings Shall Be In Accordance With The Most Recent Version Of The Indiana MUTCD And Are Subject To Approval By The Department Of Engineering.
8. Use Of "Radial Design" For Roundabout Is Discouraged. Off-Set Right Design Is Not Acceptable.
9. No Drainage Structures Shall Be Located Within Circumference Of Inscribed Circle Of Single-Lane Roundabouts.
10. All Pavement Markings Shall Be Thermoplastic.
11. Snowplowable Raised Pavement Markers (RPM) Shall Be Placed At Each Gore Area Entering The Roundabout, Prior To Pedestrian Crossings In A V-Shaped Pattern. One RPM Shall Be Placed At The Point Of The Gore Area, With Two More Placed On Either Side Of The Perimeter Of The Gore Area At Equal Distances Up To The Crossing Location, For A Total Of Five (5) RPM's.
12. All Signs Shall Be High Intensity, High Reflectivity And In Accordance With The Most Recent INDIANA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. See This Sheet For Sign Codes And Sizes.
13. All Other Appropriate City Of Shelbyville Standards Apply.
14. Street Lighting Is Required On The Approach Side Of All Pedestrian Crossings At The Roundabout Intersection.
15. All Roundabout Designs Must Be Approved By The Departments Of Engineering And Plan Commission.

NOTICE:
CERTIFICATION IS LIMITED TO THOSE STANDARDS AND GUIDELINES PER THIS SHEET. CONSTRUCTION IS SUBJECT TO CONSTRUCTION DRAWINGS, SHOP DRAWINGS, AND DESIGN ENGINEER'S CERTIFICATION SHEET.

REVISIONS		
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Reformatted Sheet	01/10/2014
3	Updated Entire Set	02/11/2020

MATTHEW J. HOUSE REGISTERED No. PE11100675 STATE OF PROFESSIONAL ENGINEER

SHELBYVILLE PRIDE IN PROGRESS

CITY OF SHELBYVILLE

LOCAL ROUNDABOUT STANDARDS & DETAILS

SHEET 18 OF 18